L H Moon
& Son
Bookbinders

NATIONAL HERBARIUM
OF
VICTORIA
26 MAY 1981
LIBRARY

33 PM, ORC, 994
V 2, complete

THE ORCHADIAN

AUGUST, 1965 PRICE : 3/- PAGE 1.
VOL 2. No. 1

Published by The Australasian Native Orchid Society.

Patron: Sir John Hall Best
Vice-Presidents: Eric Gordon
J.H.Scott
Hon.Secretary : R.G.Napier
Asst.Hon.Sec. : J. Evans
President : W.H.Murdoch
Treasurer : E. Marygold
Records Sec: R.J.Curtis
Editor : M.J.G.Corrigan
Asst.Editor: S.C.Clemesha

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
10 OCT 1966

ELECTION OF COUNCIL.

I am pleased to report the unopposed election of Council as listed above. As there was only one nominee standing for each position, all were elected without the necessity of a ballot. We welcome Mr. J. Evans to the position of Assistant Honorary Secretary. Jack Evans is also Secretary of the Warringah Group and is a very enthusiastic orchidologist whose logic and enthusiasm will prove of great benefit to Council.

PROJECTS.

Your Council has a number of interesting projects at varying stages of production and for your interest and attention I list some of the more important items:

CHECK LIST OF AUSTRALIAN ORCHIDS.

A complete list of every valid orchid species in Australia, including the following; Genera, species, author, citation, synonyms, geographical distribution, flowering period, flower colour, derivation of specific name, common names. Some idea of the magnitude of the task can be gleaned from the fact that the Editor has typed over 600 index cards for the individual species together with much of the abovementioned information. These cards are now being reviewed by members of Council and all relevant facts included. If any member feels that he has the time and reference material to assist, please contact the Editor.

A REVIEW OF THE SUBTRIBE SARCANTHINAE (ORCHIDACEAE) IN AUSTRALIA AND NEW ZEALAND.

The result of some years preparation by the author Alick Dockrill, this review will include approximately 40 drawings and text. Preparatory work has included the typing of two complete drafts of the manuscript and innumerable readings. Printers have intimated that the completed work should be available before Christmas.

INDEX - THE ORCHADIAN - Vol. 1. Nos. 1 - 12.

With this issue members will receive a complete index compiled by Stephen Clemesha, for the first volume of The Orchadian. The Index has taken many hours of Stephen's time, involving over 30 foolscap handwritten pages.

BINDING THE ORCHADIAN - Vol. 1.

After some searching Jim Scott has found a bookbinder prepared to bind Vol. 1 of The Orchadian for only 30/-. Each copy will be hard covered with good quality plasticised fabric and distinctive gold blocking. The price will include return registered post.

If you would like to have your copies of Vol. 1. bound, PLEASE READ THE FOLLOWING VERY CAREFULLY.

Collate your copies in the exact order in which they are to be bound. We can not tackle the job for you.

Make sure to include your Index in its desired position.

Delete the index for Vol. 1, Nos. 1 - 8 as the new index includes all of the old index.

Forward cheque or money order on the society, with the copies, to the Society post box.

Pack your issues between cardboard, wrap securely, and post as above.

Include your name and address in a prominent position in the package.

After binding your copy will be returned to you by Registered post.

DO NOT FORGET TO INCLUDE YOUR NAME AND ADDRESS.

THE GENUS SPATHOGLOTTIS IN AUSTRALIA.

A. W. Dockrill

Over a period of many years, the present author has seen fresh material of only one Australian species of this genus, yet two (S. paulinae F. Muell. and S. soutteriana F. M. Bail.) have been described. Type material of these two plants was examined and compared in recent months and the two are undoubtedly conspecific. Even though the paratype of the former is far from being in good condition, sufficient detail can be seen to establish its identity. Bailey's assertion in Qld. Flor. 5:1542-3 (1902) that S. paulinae F. Muell. has 3 large calli on the labellum, is not true, indeed a distinguishing feature of the genus is the presence of 2 calli. R. D. Fitzgerald Aust. Orch. 1:pt. 6 (1880) illustrated the latter species, but the shape he showed for the lateral lobes of the labellum is a mystery, the likes of which does not appear to have been seen by anyone else on an Australian plant and certainly does not compare with the paratype of the species. Possibly Bailey was influenced by this illustration when he described his species. During the course of these enquiries, numerous herbarium specimens were examined and it was found that a second species does occur in Australia, from north of the Endeavour River to the tip of Cape York Peninsula. This unidentified species has affinities with S. rivularis Schltr. of New Guinea and S. kimballiana of Borneo, but species of this genus are often not very clearly defined, and a range of fresh material of the Australian plant for study would be necessary before its identity, whether an established or new species, could be ascertained with confidence. The following description of S. paulinae F. Muell. was prepared from an examination of numerous fresh specimens, both in the field and in cultivation. This species is not particularly attractive, few flowers being open at a time and is not nearly as attractive nor as hardy in cultivation as a number of other exotic species, and efforts should be made to conserve it in its few remaining "haunts", especially since most of them are subjected to frequent bush fires.

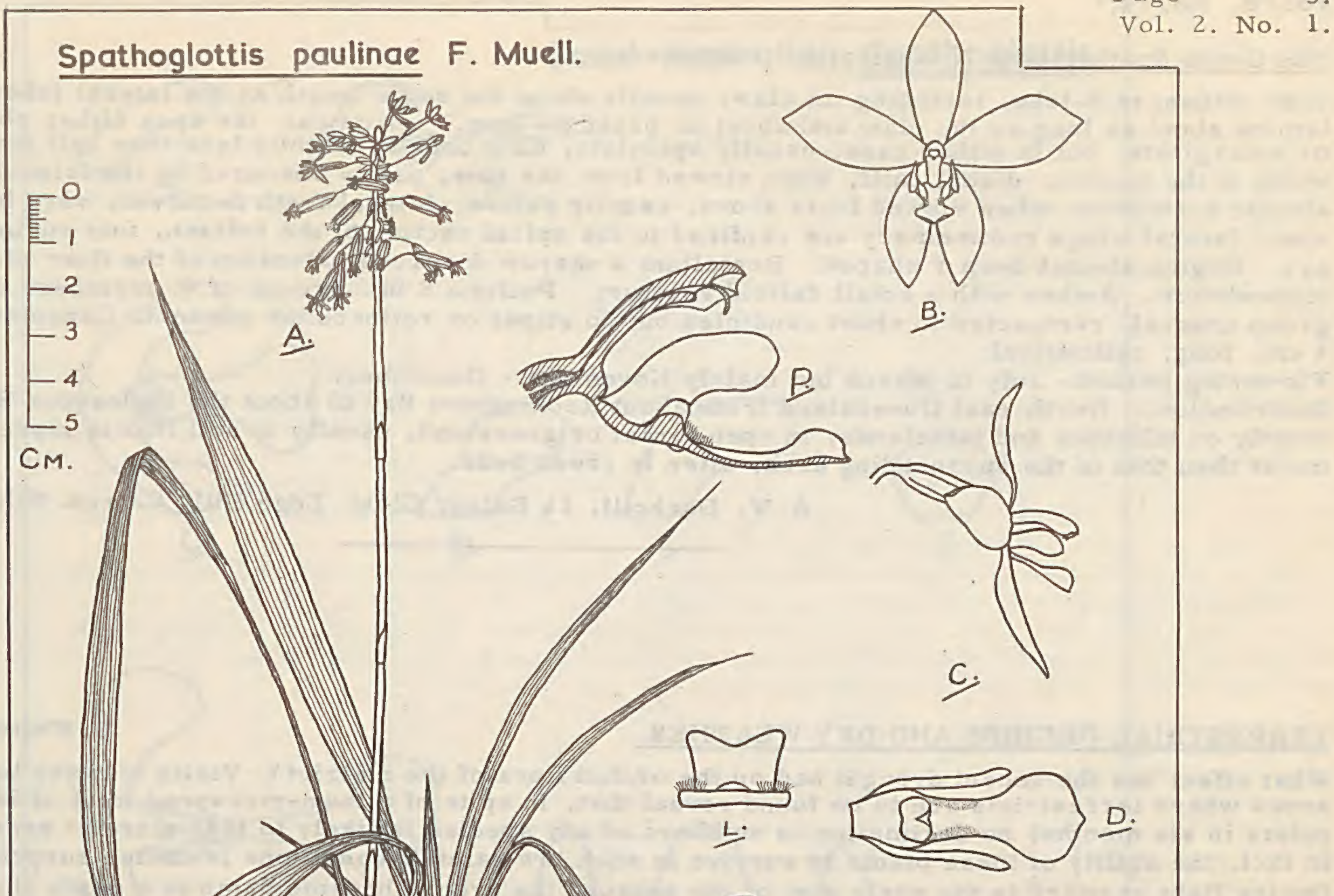
Spathoglottis paulinae F. Muell. Fragm. 6:95 (1868); Benth., Flor. Austr. 6:304 (1873); R. D. Fitzg., Aust. Orch. 1:pt. 6 (1880); F. M. Bail., Qld. Flor. 5:1542 (1902).

Bletia paulinae F. Muell. l. c.

Spathoglottis soutteriana F. M. Bail., Proc. Roy. Soc. Qld. 11:15 (1895) and Qld. Flor. 5: 1543 (1902)

Plant terrestrial, often deciduous, losing its leaves during the dry season, but if growing in a sufficiently moist place will usually retain some of its leaves throughout the year. Pseudobulbs 1 - 5 x 1 - 5 cm., ± ovoid. Leaves 4 - 7, 20 - 180 x 1 - 5 cm., the central one the longest, the outside ones greatly decreased in size, lanceolate acuminate, tapered almost imperceptibly towards the base into rather long petioles. Scapes up to about 120 cm. tall; peduncle with 4 - 6 sheathing bracts; rhachis about 6 - 15 cm. long, its bracts about 10 - 16 mm. long, lanceolate, not sheathing, in fact often decurved or deflexed; pedicels 15 - 30 mm. long, very slender. It is difficult to ascertain the exact number of flowers on an inflorescence as only a few open at a time and often barely perceptible buds, large buds, flowers and capsules are present on the one rhachis. Flowers 2 - 4 cm. diam., white to dark reddish-purple with sometimes a combination of white and mauve, but they are typically a dark reddish-purple. Sepals 10 - 20 X 5 - 7 mm., ± obovate, tapered to an obtuse point at the apex. Petals ± similar to the sepals but slightly broader. Labellum usually about 2/3 the length of the sepals; lateral lobes ± erect and curved forward, usually slightly more than half the length of the whole labellum, falco-oblong or somewhat dilated towards the apex, the apex itself either rounded or

continued page 4.



Spathoglottis paulinae F. Muell.
Key to plate:

A. Plant .... X¼ indicated scale.
B. Flower from the front... to scale X 2
C. Flower from the side ... to scale X 2
D. Labellum from above.... to scale X 5
E. Labellum from the side.. to scale X 5
F. Column from the side.... to scale X 5
G. Column from the front... to scale X 5
H. Pollinia in situ, anther removed .... to scale X 10
I. Anther from above... to scale X 10
K. Anther from the side to scale X 10
L. Callus of labellum from the front... to scale X 10
M. Callus of labellum from the side ... to scale X 10
N. Cross section of leaf .... to scale
P. Longitudinal section (median) of column & labellum .... to scale X 5
Q. Pollinia from the side . to scale X 10
R. Pollinia from the front. to scale X 10

The Genus Spathoglottis In Australia. continued

very obtuse; mid-lobe, including its claw, usually about the same length as the lateral lobes, its lamina about as long as the claw and about as broad as long, ± elliptical, the apex either obtuse or emarginate, but in either case, usually apiculate, claw usually slightly less than half the width of the lamina; discal calli, when viewed from the side, partly obscured by the lateral lobes, almost scrotoform when viewed from above, usually yellow; lateral teeth decurved, very blunt, apex, lateral wings rudimentary and confined to the apical section of the column, foot rudimentary. Stigma almost deep V shaped. Rostellum a narrow decurved extension of the floor of the clinandrium. Anther with a small deltoid rostrum. Pollinia 8 in 2 groups of 4, members of a group unequal, contracted to short caudicles but no stipes or retinaculum present. Capsules 3 - 4 cm. long, cylindrical.
Flowering period:- July to March but mainly November - December.
Distribution:- North-east Queensland from about Rockingham Bay to about the Endeavour River, mostly on hillsides and tablelands, in open forest or grassland, usually in soil that is more moist than that of the surrounding area, often in creek beds.

A. W. Dockrill, 11 Balzer Close. Edge Hill. Cairns. Nth. QLD.

TERRESTRIAL ORCHIDS AND DRY WEATHER.

B. Whitehead

What effect has the recent drought had on the orchid flora of the district? Visits to many local areas where terrestrials are to be found reveal that, in spite of a town-measured total of 286 points in six months, no decimation in numbers of any species is likely to take place at present. In fact, the ability of these plants to survive in such low rainfall conditions is rather surprising. During light showers in the early part of the season, the ground became damp to a depth of about ½". Occasional light showers following at intervals of many weeks encouraged development of rosettes and leaves and gradually caused the bush soil to become damp for several inches. The composition of the soil and the high humus content prevented complete dry-out from taking place, and to this fact can be attributed the rapid development in the growth of orchids in the absence of further significant falls of rain.

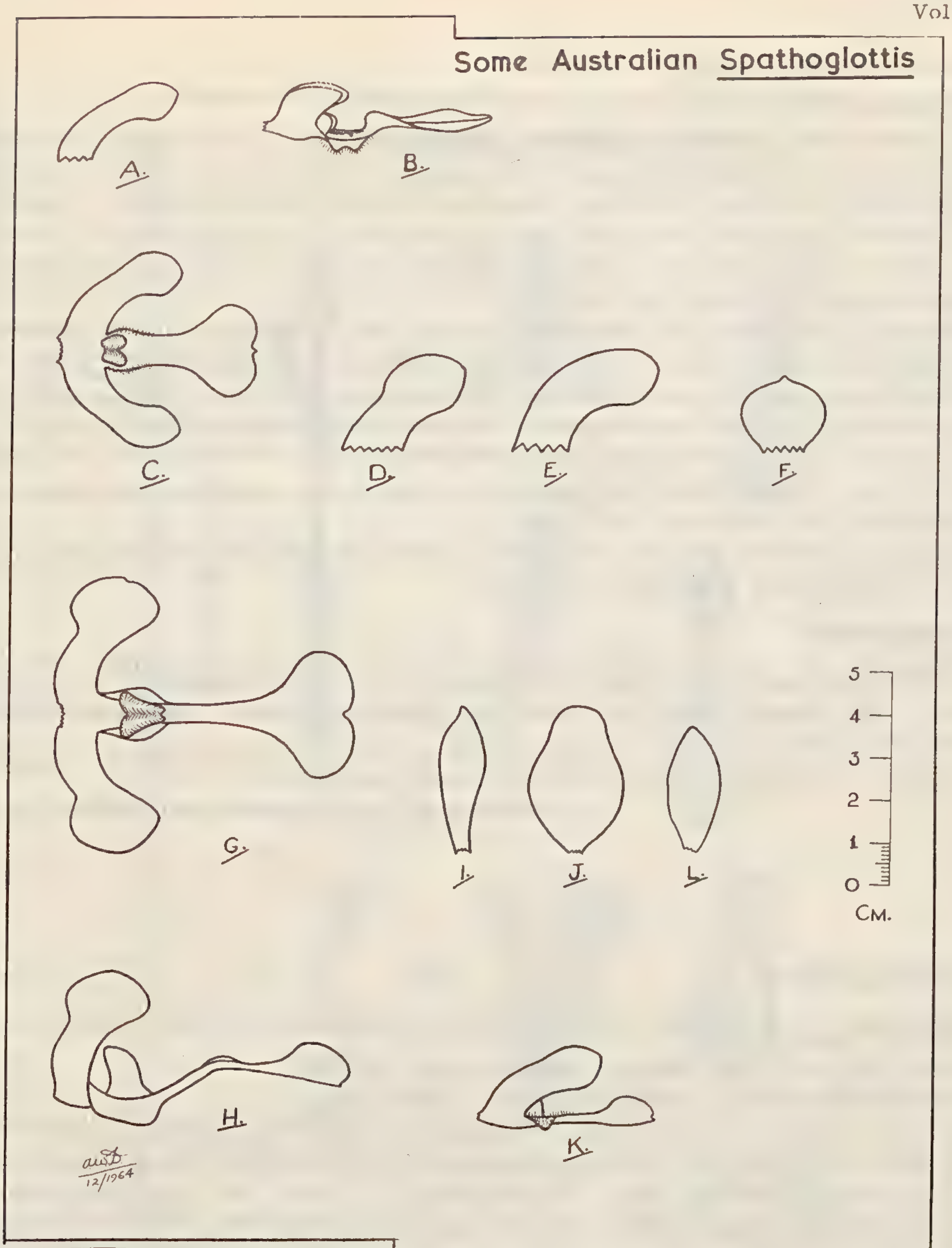
Direct Effects on Species:

Pterostylis parviflora - flowered later and in smaller numbers than usual. Non-flowering plants produced quite healthy rosettes.
Prasophyllum rufum - flower spikes were in evidence about 4 weeks later than usual but failed to reach flowering stage.
Prasophyllum archeri - flowered normally a few weeks later than usual.
Pterostylis revoluta - rather fewer flowers than usual and those produced mostly not taller than 4". Some large colonies produced no flowers at all, but rosettes were plentiful and healthy. This species flowered at its usual time, May-June.
Pterostylis mutica and Pterostylis boormanii - rosettes of these species appeared later but have grown rapidly to their normal size and are showing obvious buds indicative of free flowering in season.
Microtis unifolia - leaves retarded in development at present, but looking healthy.
Calochilus robertsonii and Thelymitra pauciflora - leaves of these two species are in most cases about half the size which can be expected at this time of the year. Both species are developing healthy new tubers despite the depauperate conditions of the plant above the ground. Whether the plants will flower appears doubtful.
Acianthus fornicatus - leaves appeared about the usual time (April), but very few flower spikes are in evidence at present.
Diuris palachila - a late starter, but growing rapidly and most plants of any size are showing buds which will flower at the usual time in early September.

Incidence of Disease:

Whether or not this can be blamed on the drought is debatable, but I suspect that early slow development of some species has made them less robust and resistant at the time of the season propitious for attack by certain maladies.
Of these species, Diuris palachila is the only one affected to any extent. Occasional plants in the bush are showing signs of leaf-rot and quite a few have been attacked by rust on the upper half of the leaves.

continued page 6



Some Australian Spathoglottis.
Key to plate:

A. Lateral lobe of labellum of paratype specm. of S. paulinae .... to scale X 5
B. Labellum of S. paulinae taken from Fitzgerald (I am unable to account for this shape).
C. Labellum, flattened out, of S. paulinae from the Barron River .... to scale X 5
D.) Variations in lateral lobes of labellum of S. paulinae from Barron River to scale X 5
E.)
F. Variation of mid-lobe of labellum of Barron River, S. paulinae .... to scale X 5
G. Flattened out labellum of undescribed species of Spathoglottis from Cape York Peninsula .... to scale X 5
H. "G" from the side... to scale X 5
I. Lateral sepal of specm. "G" .... to scale X 2
J. Petal of specm. "G" .... to scale X 2
K. "C" from the side .... to scale X 5
L. Petal of S. paulinae .... to scale X 2

Terrestrial Orchids And Dry Weather. continued

Indirect Effects:

If future losses are to occur in the orchid flora in this area, they will, in my opinion, be caused by what I choose to call the indirect effects of the dry weather on the orchids. While the orchid plant itself is somewhat adaptable to these adverse conditions, it has no control over its associated flora. Large areas of low scrub have been completely killed by lack of moisture, resulting in some removal of natural cover and protection which orchids require. Falling of leaves has left only dry branches as cover at present, but no detrimental effect is yet visible on orchids growing beneath these shrubs. Unless rather rapid regeneration of the shrubs takes place, it is possible that the orchids associated with them will disappear.

Lack of feed and water is forcing either animals or birds to look to orchid tubers for sustenance and there is in some spots a noticeable increase in the number of tuberless rosettes lying around, having been removed from the ground by fauna especially for the purpose of eating the tuber. One can feel no ill-will towards these animals or birds in their desire to survive, but one wishes that they were not so particular in their requirements - why must they always pick on the scarce species? - in the case I have in mind, it is Pterostylis barbata. (The answer is that this species has the largest tuber of the species available).

Finally it would be safe to assume that reduced flowering will lead to reduced seed production and a consequent decrease in the number of seedlings.

Despite these factors, I am confident that established orchids here will not suffer greatly during this season and colony formers will continue to increase at a reasonable rate. There may be long-term effects in the natural increase by seedlings.

Advantages of Dry Weather:

By looking hard enough, one can foresee a benefit to be derived from the dry weather. The very large proportion of leaves which have fallen will provide the basis for a build-up in the humus content of the soil, with probable beneficial effects on terrestrial orchids. Unfortunately the advantages are confined to this.

In assessing the comments made in this contribution, it must be remembered that they apply only in the Forbes district. Conditions elsewhere may be vastly different.

B. Whitehead, 14 Thompson Street, Forbes. N.S.W.

BURNETTIA CUNEATA Lindl.

L. Cady

Burnettia cuneata Lindl. Gen. et Spec. Orch. (1840) 518; Benth. Flor. Austr. vi (1873) 375; Rupp. Orch. N.S.W. (1943) 56.
SYN.: Caladenia cuneata (Lindl.) Reichb. f. Beitr. Syst. Pfl. 67.
Lyperanthus Burnettia F. Muell. Fragm. v. (1865) 96.

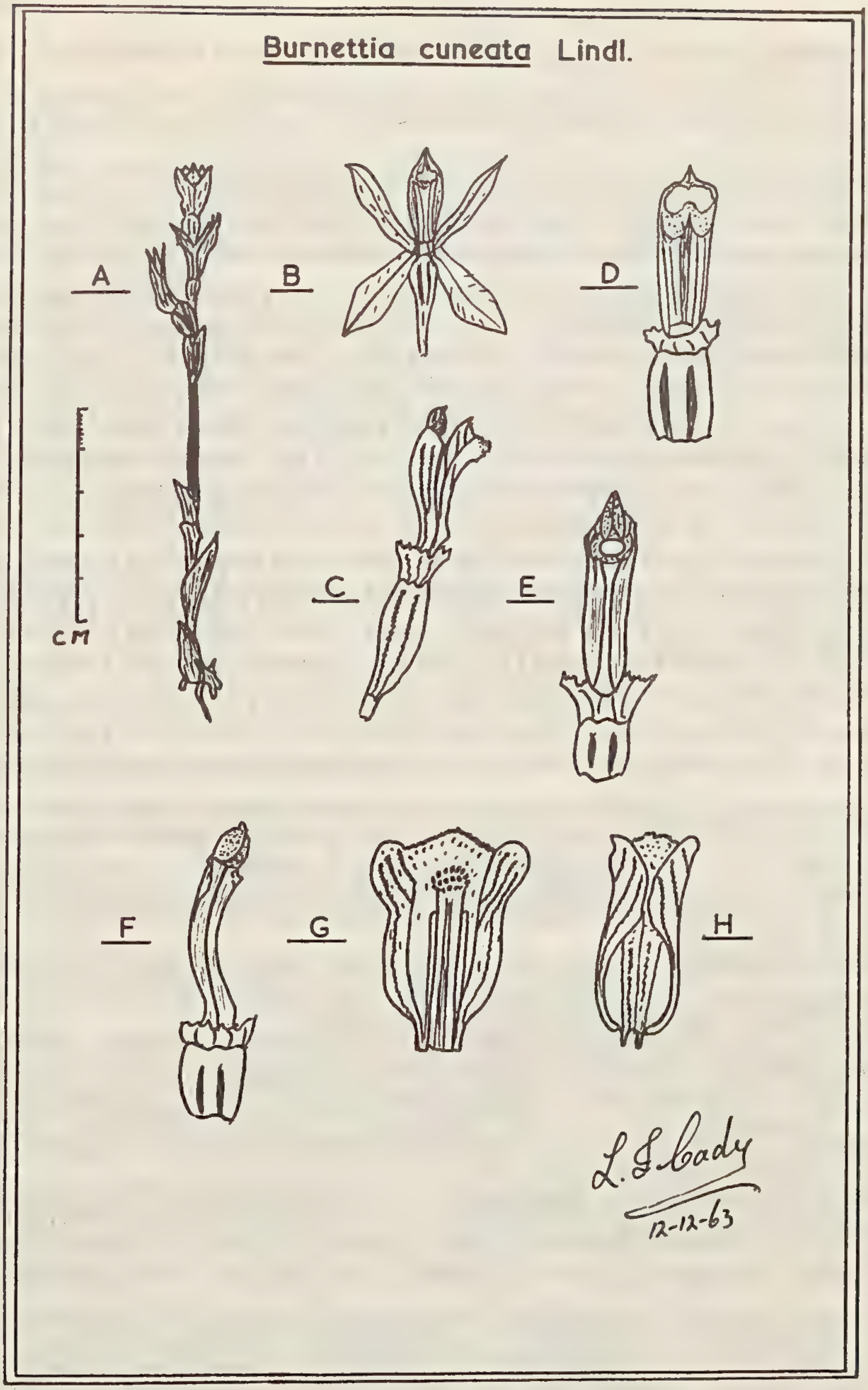
A dwarf plant, terrestrial, with small globular tubers and radical leaves, absent at flowering time (appearing in the Autumn). Stem bracts 1 - 2 loosely clasping. Leaves 1 or 2 ovate-lanceolate. Flowers 2 - 5, large for the size of the plant, purplish-brown outside, white or pinkish inside with conspicuous dark veins. Dorsal sepal 12 - 15 mm. long, broad lanceolate, concave but hardly cucullate; lateral sepals and petals up to 15 mm. long. Petals narrower than sepals, all perianth segments fleshy in texture. Flowers opening shyly. Labellum 10 mm. long when flat, sessile, short, undivided, erect at base, broad, truncate or obscurely sinuate at times, even fringed at apex, the lamina with 2 longitudinal ridges or raised plates broken up into calli above the middle. Column about 7 mm. long, incurved, winged. Anther erect, 2 celled, pollinia 2, glandular.

Distribution: Confined to south-eastern Australia, i.e., Tasmania, Victoria and rarely in N.S.W.

Flowering period: September to November, chiefly October.

Remarks: This is a very rare plant. It seems to confine itself to the swamps at higher elevations, but it should be looked for on the edge of swampy areas in open heath land. The short period that the flower is open and the usual setting of fertile ovaries, suggests that this species is mainly cleistogmatic in habit. Another point of interest is that the plant appears to be more plentiful after a bush fire has been over the area.

Leo Cady, P.O. Box 88, Kiama. N.S.W.



Burnettia cuneata Lindl.
Key to plate:

A. Plant natural size to scale
B. Flower opened out X 4
C. Column and labellum X 4
D. Column less anther X 5
E. Column front X 5
F. Column side X 5
G. Labellum flattened out to show interior X 6
H. Labellum in natural form X 6

THAT MAN AGAIN! - ON NOMENCLATURE.

Well, here I am again driven by the whip of S. Legree Corrigan struggling to find a thought that would be of interest to "youse blokes".

I wish you younger fellows whom I am sure have plenty to tell would get off your tails and say it: rather than have a poor grey headed old coot of over 70 years of age battling to find something to say.

So what to say ? Once again I feel I should bash the subject of NOMENCLATURE. A study of one of our leading orchid journals shows that there is considerable misunderstanding on this subject. Apparently many orchid growers do not appreciate the fact that botanists and horticulturists have a separate language and that the horticulturists language without a botanical background is meaningless.

Once again I will try to clarify the language of botany as it applies to orchids (our love) the great noble Webster said that nomenclature is the system of names used in any branch of knowledge; more particularly those names used in classification. This of course would include the basic names of biology, the divisions: phylla, order, families. Here I only intend to speak of species as the plants in which we are interested all belong to the family Orchidaceae. I have pointed out in other articles that each plant has two names and that the system under which they are given names is known as binomial nomenclature. The first is the generic name which corresponds in many ways to the family name among people such as Dowling, Colman, Corrigan etc. We of course have distinguishing names in our own families such as Margaret, Philip, Murray. These distinguish the members of the families one from another and so in botanical nomenclature we have the specific name - As in the family the generic name is given to a group having something in common, in the case of botanical names usually a common floral characteristic particularly the reproductive organs (pistils and stamens). We, you and I of course know that orchids are known from other plants by the fact that these organs have a form that is entirely different from other plants inasmuch as that the pistils and stamens, instead of being separate and multiple (in the case of stamens) are found together in one unit which we know as the column. Plants of the same genus are known by the form of their floral parts and distinguished one from the other by the form of their vegetative parts. I hope this preamble is clear, I will now try to explain to you some of the many things (apparently strange to most people) which govern the names of plants (all).

The first name, or generic name is always a noun and is either a Latin word or has been Latinised. You may or may not remember that all Latin nouns have gender and may be masculine, feminine or neuter. This is a most important factor in determining specific names and it is almost impossible for any person without the necessary training to determine the gender of a specific name from its spelling - This is not quite as hopeless as it sounds and it is possible to accept the following rule generally.

Those generic names ending in -a are feminine: those ending in -us are masculine and those ending in -um are neuter. There are exceptions, one of which are genera containing mainly trees; they are always regarded as feminine (like ships).

The generic names have many origins, some of which are very obscure; sometimes the name covers a characteristic of the plant or flower i.e. Phalaenopsis means "moth-like"; Phaius for a reason that I can't see means "dark"; Some generic names refer to people, such as "Drakea", "Burnettia", "Townsonia" and of course "Oberonia" if you are willing to accept the king of the fairies as a person. Some names refer to place or habit of growth i.e. Dendrobium from the Greek words "dendros"-tree and "bios"-life.

There are generic names such as Vanda which we can trace back to their source without any idea of their original meaning. Vanda is a Sanskrit word referring to plants of similar nature not always orchids. As a matter of interest I must mention the Robert Brown who named this genus received the above information from Sir William Jones who was a very eminent oriental scholar and linguist.

To cover this again: whatever the source or derivation of the generic name it has the following qualities: it is Latinised, always a noun and has gender. Now to the specific (or "little" name) it always is a modifier of the generic, is always Latin in form and is normally an adjective, occasionally a noun in apposition and quite often a proper noun in the possessive case (genitive) case. All the forms have characteristics; in the case of the adjectival epithet it must always have the same gender (not necessarily the same ending) as the generic name. Latin adjectives ending in -a are feminine; those ending in -us are masculine and ending in -um or -e become neuter. If they end in -er they are masculine and those ending in -ns, -rs, -r, -or, may have any gender. The fact that the specific adjective must agree in gender with the generic name accounts for the spelling variations of the same specific name, as: Caladenia alpina Rogers and

continued page 9

That Man Again! - On Nomenclature. continued

Prasophyllum alpinum R. Br. or Prasophyllum eriochilum R.D. Fitzg. and Sarcochilus eriochilus R.D. Fitzg.
Examples of a noun in apposition is Dendrobium phalaenopsis - The nouns in the possessive case have, of course the standard Latin genitive endings -ae for a woman's name -ii for a man's. For instance Thelymitra murdochae Nicholls named after Lady Murdoch or T. macmillanii F. Muell. named after its discoverer Thomas Macmillan, a keen Victorian horticulturist. Like many of us, plants occasionally have a third name, known as a varietal name; this is given to a form which differs from the type (usually in colour) but not sufficiently to warrant its naming as a distinct species. The basing of varietal names on such non-botanical differences as colour has led to a lot of confusion and should be reserved purely for horticultural names. However this is at present only my personal opinion and we have many orchids so named. If Latin adjectives, varietal names must, as in specific names have the same gender as the generic name: When the names of plants are written in a botanical form the generic name is always capitalised and although the Rules of Botanical Nomenclature allows some freedom modern practice is not to use capitals at all for specific names -
Pronunciation of the Latin or Latinised names for plants is something that apparently depends on what school the user attended, but I feel that we should accept a normal English form. By this I mean that the long and short vowels should be as follows; a as in pane and pan; e as in mete and met; i as in pine and pin; o as in mope and mop; u as in prune and pun; y when a vowel like i.
The dipthongs; ae like e; au like aw in saw; eu as close as u as one can make it.
Accent on syllables should be evenly stressed Bulb-o-phyllum not Bulb-ó-phyllum, after all one does not say Den-dro´b-ium.

E.G. Gordon, 265 Goulburn Street, Sydney. N.S.W.

LAURIE (JASON) AND THE GOLDEN FLEECE.

W.H. Murdoch

For centuries, orchids have had ascribed to them, many unusual characteristics, and many of the legends associated with their discovery, lack nothing in imagination. All this tends to show how far behind we are. But are we ? What! no tradition you ask ? But not altogether. Who, for instance has not heard of the "Pink" Dendrobium speciosum Sm. Ex. Bot. 1 (1804), and who indeed, is only waiting for more information from the chap who knows a chap who really knows where one is ?
This calls to mind, what we shall call "The Saga of the Pink Speciosum (etc. etc.)", the hero, as yet unsung, and as modest as all heroes should be, tells the story.
His friend was positive, it is in flower now. It can be reached by car, no walking. Can be seen from the road. Yes, fairly high. No, the trees not too big.
So Laurie equipped himself, and started out. Here I note a strange likeness to Jason of the Golden Fleece fame, (Ancient Greek legend, not a trade plug), only Jason had his "Argo" to carry him through his adventure, Laurie his Landrover. His equipment, probably not understood by many of my readers, a cross cut saw, maul, axe and wedges, so I may explain. To be able to handle a cross cut saw effectively only comes after long practice, almost, shall I say, from boyhood up. However, Laurie was quite competent and confident, even when he realised the tree was bigger than anticipated. It is beside the point as to whether the tree was too big, or the saw too small, the result however, was that when fairly started, the play - or stroke, of the saw was reduced to about six inches.
It would save your feelings if we hastened on from here. I realise you are with Laurie on his quest. To give in detail, the hours of aching limbs, the steadily worsening of blistered hands, and the empty water bag, would only distress you. As for Laurie, did he not have that luminous prize above his head, to be literally at his feet in a few hours time ? One can imagine the occasional stops, the flexing of the cramped arms, the rueful inspection of his blistered hands, and, the comforting glance to assure himself he was really about to make history.
There is a finish to most enterprises, and this was no exception. A good bushman, Laurie had finished his sawing, put the saw away, inserted a wedge, and cut a scarf with his axe.
Stumbling forward, hoping the fall had not damaged the plant, and to collect his honestly earned reward.
Envoy. Laurie never learned just what the botanical name of the red flowering creeper really is.

W.H. Murdoch, Robey Road. Coal Point, 2N. N.S.W.

DENDROBIUM DELICATUM (F.M. Bail.) F.M. Bail.

A. Blombery

Eric Gordon's article "Is it or is it not", in the June issue of "The Orchadian" Vol. 1, No. 12, has once more raised a subject which has long required clarification. The article gave an excellent summary as well as a personal opinion on the subject. In an article in the "Journal of Orchidology", Vol. 2, Part 1. Feb. - March 1961, I expressed the opinion that Rev. H.M.R. Rupp was wrong in naming Dendrobium kestevenii when D. delicatum (F.M. Bail.) F.M. Bail. has already been described. The mistake was apparently due to Rupp not having seen specimens of D. delicatum. It is unfortunate that the name D. kestevenii was not withdrawn when personal attention was drawn to the error by the late F.A. Weinthal. I discussed this matter at some length with Fred Weinthal prior to his death some years ago. To further clarify the position it has been decided after discussion with the late F.A. Weinthal's daughter, to publish extracts of letters from the Rev. H.M.R. Rupp to F.A. Weinthal on the subject of D. delicatum and the wrongly named D. kestevenii. From these extracts it will be seen that Rupp was inconsistent in his views on the subject. "St. Mary's Church of England, Weston. 25-9-31. ... You have thrown a bombshell into camp! Your larger D. delicatum is unquestionably identical with what I have described as D. kestevenii from Bullahdelah. But I'm afraid I'm going to saddle you with some of the responsibility. I had never seen D. delicatum except for one or two racemes you sent me and the plant you gave me. I believe in the first instance you did send a small raceme of the larger flowers but they were nearly withered (as are the smaller ones in the present lot). Eliminating this, both raceme and plant appealed to me as Kingianum album; and I have waited vainly for the plant to flower that I might make proper examination at leisure. Not knowing delicatum, however, I accepted determination pending further opportunities and this was the situation when Kestevenii was sent to me last year. There can be no doubt, I think, that this plant and your larger one are the true delicatum. When Bailey's description is read in conjunction with the above circumstances, it tallies very well. He says "flowers white", but though both yours and mine of this year are tinted mauve, and mine are cream, some of the flowers sent me last year were quite white. I shall have to recant my description of Kestevenii as a new species, and the Kestevens will bewail the fact! I think also we must place your small delicatum as the white flowering Kingianum. The form of the labellum when flattened out agrees exactly and is different in outline from that of the larger flowers. I am glad you sent these specimens, as I was just preparing a paper giving further details of Kestevenii from my own plant. The flowers are nearly done and have lost their mauve tinting, but I send a half-faded raceme that you may compare the structure.". . . .

"St. Mary's Church of England, Weston. 30-9-31. ... I think it is quite impossible to dodge the issue in this case. Whatever the slight variation in growth of the plant (the first I got differed considerably from the second: shorter and smoother); the flowers you sent me were absolutely identical in every respect with those of my Kestevenii - they might have come from it and I shouldn't have known the difference if told that they had. It is much better to get the matter over and done with. Now that my "prejudice" due to the impression that your Kingianum album was delicatum is done with. I see how well Bailey's description really fits Kestevenii. His omission of the mauve tinting is unimportant considered by itself. Before your raceme withered it had practically faded out and in my Kestevenii when the flowers had been out 10 days it was scarcely discoverable. Bailey probably only saw well matured flowers. To maintain D. Kestevenii in face of the evidence now available would be to invite charges of hair-splitting. The discovery of D. delicatum on the Alum Mtn. is still quite a notable record. . . . . "

"St. Mary's Church of England, Weston. 6-10-31. . . . . The Kestevens are putting up a stout defence as they state they have found another form on the mountain which seems to them even closer than Kestevenii to Bailey's description of delicatum. I have decided to let the former stand for the present, "on probation" as it were and next September I will make a special effort all being well to run over to Bullahdelah and inspect all plants in situ. Meantime - would it be possible for you to photograph your plant for a comparison of the pseudobulb and leaf growth."

"The Vicarage, Pilliga. 6-11-33. D. speciosum, Kingianum, delicatum, Kestevenii. This problem is more difficult because of the difficulty of knowing for certain what Bailey's D. delicatum is. Time and again various forms of white-flowering Kingianum has been set up under this name, only to be bowled over and then we are told Bailey was wrong and there is no delicatum. But Bailey was not a fool and he probably knew the vagaries of Kingianum much better than his critics and I do not think he would have erected delicatum - particularly in a region inhabited by Kingianum - without good reason. At present I regard your delicatum (Mr. Fieldsend sent me flowers from the plant you gave me) as probably being Bailey's species. I will not say certainly

continued page 11

Dendrobium delicatum (F.M. Bail.) F.M. Bail. continued

till I have been able to observe it for myself as it grows and flowers. At all events as far as I can judge without so observing it, it comes nearer to Bailey's description than any other. Which leads me to the fact that it is perilously close to Kestevenii. The labellum however is not the same as any of the seven forms I received under the name Kestevenii and I think it likely that if further careful investigations are made next year we shall find it desirable to merge delicatum and Kestevenii into one somewhat variable species intermediate between speciosum and Kingianum. At present they should stand as they are - unless anyone else has done critical work beyond the stage I've reached."

Although there are a number of forms of D. delicatum in cultivation unfortunately there are no longer any plants of this species growing at Spring Bluff, Toowoomba, Q., where the first specimen was collected and there are few of any of the species on the Alum Mtn., Bulahdelah, N.S.W. The variation in vegetative characteristics and in the labellum as quoted by Rupp (see Eric Gordon's article) are of little importance for depending upon the form, condition of growth and amount of light, pseudobulbs can differ considerably in length, colour and general appearance; leaves also vary in size and variation in the shape of the labellum is a common characteristic in species of Dendrobium.

I expressed the opinion in the "Journal of Orchidology", Vol. 2, Part 1, Feb. - March 1961, that D. delicatum could be a hybrid of D. speciosum and D. kingianum as it has only been found where these two species grow together but this is only supposition for proof of this would require considerable work and time. As specimens of D. delicatum with similar characteristics have been found in widely separated areas, it must be regarded as a species.

The above is further evidence that D. kestevenii is not a valid species, for it is merely one of the many forms of D. delicatum.

It is of interest that the original plant of D. delicatum collected by F.A. Weinthal at Spring Bluff and the white form of D. kingianum mentioned in the extracts of Rupp's letters have been in my possession since the passing of Fred Weinthal some years ago and today are vigorous specimens, the former being a particularly large plant.

A.M. Blombery, 8 Terry Road, Eastwood. N.S.W.

DENDROBIUM TERETIFOLIUM R. Br. A REVIEW OF THE SPECIES

S.C. Clemesha

In this paper Dendrobium teretifolium var. aureum Bail. is reduced to a form of Dendrobium teretifolium var. fairfaxii (Fitzg. and F. Muell.) Fitzg., and differences between the four forms of D. teretifolium are discussed.

After studying and comparing flowers of all the named varieties of Dendrobium teretifolium the author became aware of the very close relationship between var. fairfaxii and var. aureum, when many flowers of both varities were compared the author found no significant morphological differences.

D. teretifolium var aureum differed only from var. fairfaxii in that the colour of all the flowers of var. aureum were greenish-yellow to deep golden-yellow, while those of var. fairfaxii were white to cream.

Therefore Dendrobium teretifolium var. aureum is reduced to a form of var. fairfaxii.

To the author's knowledge the legitimate reduction of var. aureum to D. teretifolium var. fairfaxii forma aureum has not been attempted by any previous author and the present paper is to effect that transfer. A systematic treatment of all the varieties and forms of D. teretifolium will follow.

D. teretifolium R. Br. Prodr. (1810) 33. A complex of at least three varieties and two forms.
Syn. D. calamiforme Lodd. in Lindl. Bot. Reg. (1840) Misc. 9.

I. Dendrobium teretifolium var. teretifolium.

An epiphytic species producing few to numerous pendulous, branching, tough wiry stems up to 100 cm. long, with leaves terminal on branches of the stem. Leaves pendulous, terete, up to 50 cm. long and about 5 mm. in diameter, becoming progressively smaller towards the apex where they are frequently only 5 cm. long and 3 mm. in diameter. Racemes produced from the nodes of the newly formed part of the stem, 2 cm. to 8 cm. in length, pale green and bearing from 4 to 16 inverted white or cream flowers with segments curving outwards from about the middle. Pedicels up to 3 cm. long (including the ovary). Segments recurved and of variable dimensions, but commonly with sepals slender, tapering from 4 mm. wide at the base, to 1 mm. wide at the apex and about 25 mm. in length (when flattened). Petals of similar length but more slender, tapering from 1.5 mm. at the base, to finely acuminate or even filiform at the apex.

continued page 12

Dendrobium teretifolium R. Br. A Review of the Species. continued

Labellum half to two thirds as long as the petals, narrow lanceolate, lateral lobes small, entire, erect and about one third the length of the mid-lobe, with crenulate margins, finely acuminate and greatly recurved at the apex and marked variably with purple on either side of the 3 white convolute, laminal ridges.
Column about 9 X 2 mm., slightly curved forwards, stigma oblong; rostellum short and narrow lanceolate. Pollinia erect, narrow-oblong, 1 mm. in length; anther cap broad lanceolate, slightly higher than the column wings.
Distribution: South eastern Australia, from Bega N.S.W. to at least as far north as the islands of Moreton Bay near Brisbane QLD. A common species usually growing on Casuarina glauca (swamp oak) and Casuarina cunninghamiana (river oak) and less commonly on Melaleuca spp. and Ficus spp.
Flowering period: Late July to September, depending on the locality.

2. Dendrobium teretifolium var. fairfaxii
A variety with at least 2 forms.
(A) forma fairfaxii (Fitzg. and Muell.) Fitzg. in Moore and Betche, Handbook of the Flora of N.S.W. (1893) 385.
Syn. D. fairfaxii Fitzg. and F. Muell. in Sydney Mail, September 1872.
This plant is similar to var. teretifolium but differs from it as follows.

(1) Stems much longer, to 285 cm. and growth eyes less frequently covered with the horny projections that are so common in var. teretifolium.
(ii) Leaves more numerous, longer and more slender than those of var. teretifolium, to 70 cm. in length and normally 1.5 mm. to 2.5 mm. in diameter. Consequently they often are quite flaccid.
(iii) Surface of the leaves shiny and smooth compared to the somewhat rougher leaves of var. teretifolium.
(iv) Pedicels and buds dark red-brown compared to the light green of var. teretifolium.
(v) Racemes not infrequently produced on old parts of the stem as well as the new part.
(vi) Racemes never as floriferous as those of var. teretifolium, commonly bearing 2-3 flowers and less frequently bearing 1, or 4-7, consequently this plant is much less showy than var. teretifolium.
(vii) Floral segments less recurved than those of var. teretifolium, sepals and petals with dark red-brown striations at the base.
(viii) Labellum devoid of markings on either side of the laminal ridges.
(ix) Laminal ridges dark red-brown.
(x) Flowering season about 3 weeks later than that of var. teretifolium.

Though these differences are numerous they are all only of colour and habit and therefore in the author's opinion the reduction of this plant to varietal rank by R.D. Fitzgerald was justified.
Distribution: This plant is the common N.S.W. rain forest form found in the Blue Mountains, north coast and north coast ranges of N.S.W., at least as far north as the Clarence River.
Flowering period: August - September depending on locality.

(B) forma aureum (Bail.) S.C. Clemesha Stat. Nov.
Syn. D. teretifolium var. aureum Bail. in Queens. Flor. V (1902) 1534.
This plant is so similar to forma fairfaxii that it can only be regarded as a form of it. The following listed differences though slight in the case of the first 3 are quite constant but not sufficient to warrant varietal rank.

(i) Instead of the flowers being white to cream, they are green-yellow to deep golden yellow.
(ii) The degree of striations is frequently greater than in forma fairfaxii.
(iii) forma aureum produces up to 7 flowers more frequently than forma fairfaxii.
(iv) The leaves are sometimes less numerous and more robust than those of forma fairfaxii but more commonly are almost identical.

Distribution: Like forma fairfaxii this plant is a rain forest form. It grows north of the Richmond River in N.S.W. and is very common in the rain forests of south Queensland, e.g. Springbrook, Tambourine, Lamington National Park, Mount Glorious, to at least as far north as mountains 20 miles north west of Nambour QLD.
The only synonym of D. teretifolium that the author knows of is D. calamiforme Lodd. in Lindl. Bot. Reg. (1841) Misc. 9.

continued page 13.

Dendrobium teretifolium R. Br. A Review of the Species. continued

A copy of the original description is given below.
Caule repente annulata; folia teretibus pugentibus, racemo laxo terminali, foliis breviore, bracteis minimis, sepalis petalisque erectis acuminatissimis, labello trilobo, lineari-lanceolato: lobo medio setaceo acuminato crispato lamellis axeos 3 membranceis planis versus apiceim crispis.
A pretty and graceful epiphyte from New Holland imported by Messrs. Loddiges. Its cylindrical leaves are 8 inches long. The flowers are seated on footstalks nearly an inch in length, including the ovary, and are a light yellow or cream colour with the base stained with purple. The labellum is purple, beautifully crisped and spotted towards the upper end.
This description in my opinion barely makes it clear that it is referring to var. teretifolium as words "spotted towards the upper end", could not be applied to var. fairfaxii.
The statement "The labellum is purple", is apparently an error and I would be of the opinion that it possibly referred to D. beckleri F. Muell. except that this species never produces leaves 8 inches long. Var. fasciculatum will be treated next issue.

S. C. Clemesha, 3 Consett Street, Concord. N. S. W.

THE PUBLISHED WRITINGS OF A. W. DOCKRILL.

P. Colman

The following bibliography has been compiled, and is published here, for the benefit of those more serious students of Australian orchids, who wish to refer to the original writings of Dockrill. This paper, it is hoped, is the first of a series planned to cover the published works of those who have contributed most to our knowledge of Australian orchid species. One or two comments regarding the following list may be pertinent here. Several papers appeared in the Journal of Orchidology, the official journal of the Australian Orchid Society and is no longer published. The six papers published in Orchideeen, the vehicle of the Dutch Orchid Society, have been proved since "to perpetuate a number of errors" quoting Dockrill. I might add that they are in Dutch.
The works have been listed in chronological order, with exceptions. Where a number of papers appear in any one issue, pagination decides the order. Where more than one appear during any month in different journals, and no actual date of publication is stated, they are in alphabetical order.
The species discussed, if not appearing by name in the title, is/are included after the title, and enclosed in double brackets. Where taxonomic study since has shown a change of name necessary, I include the emendation after the entry, preceded by -, and in parentheses; e.g. Dendrobium fusiforme.... (- Dendrobium ruppianum Hawkes).
New names, new status and combinations, and new records presented by Dockrill, are listed at the end of this paper. The numbers following represent the paper in which they are proposed.

1954 1. An abnormal Caladenia (C. tesselata Fitzg.)
Austr. Orchid Rev. 19 (1):15. March 1954.

2. The Orchids of Barrington Tops, N. S. W.
Ibid., 19 (2):69-70. June 1954.

1955 3. Two New Terrestrial Orchids from the Ravenshoe District.
((Acianthus sublestus and Pterostylis carinata))
Nth. Qld. Nat. 23 (110):3-5, 2 t. figs. 1st Jan. 1955.

4. Retraction of a Species of Orchidaceae (Acianthus sublestus)
Ibid., 23 (111):6-7. 1st May, 1955.

5. The Genus Cryptostylis in Australia.
Austr. Orchid Rev. 20 (2):74-76. June 1955.

6. A New Species of Corybas (Orchidaceae) from the Atherton Tablelands.
((C. abellianus)) Nth. Qld. Nat. 24(112):1-2, t. fig. 1st Sept. 1955

1956 7. A New Form of Dendrobium fusiforme F. M. Bail. (Orchidaceae).
((D. fusiforme (=D. ruppianum Hawke) forma magnifica))
Ibid., 24(114):24. 1st Feb. 1956.

continued page 14

The Published Writings of A.W. Dockrill. continued

1956 8. The Cross Pollination of Chiloglottis formicifera Fitzg.
Austr. Orchid Rev. 21(1):26. March 1956.

9. Revision of Dendrobium lichenastrum (F. Muell.) Krzl. and its Allied Forms. (Orchidaceae) Nth. Qld. Nat. 24(115):20-21. 1st May 1956.

10. New Variety of Dendrobium canaliculatum (Orchidaceae) from Cape York Peninsula.
Ibid., 24(115):21-22. 1st May 1956. ((var. pallidum))

11. An Amended Classification of the Orchid Genera Occurring in Australia and New Zealand. (Hatch et. Dockr.)
Ibid., 24(115):22-23. 1st May 1956.

12. A New Species of Taeniophyllum. ((T. lobatum))
Vict. Nat. 73(3):45. July 1956.

1957 13. Bulbophyllum macphersonii var. spathulatum. (Dockr. et St. Cloud.)
Nth. Qld. Nat. 26(117):4-5, t. fig. 1st March 1957.

14. A New Species of Bulbophyllum from Qld. (Dockr. et St. Cloud.)((B. revolutum))
Vict. Nat. 74(5):67. Sept. 1957.

1958 15. A New Genus (Orchidaceae) for Australia. (St. Cloud et Dockr.)
((Tainia parviflora Schltr.))
Nth. Qld. Nat. 27(120):1-2. t. fig. 1st Sept. 1958.

16. Some Notes on Saccolabium subluteum Rupp. (Orchidaceae)
Ibid., 27(121):2-3, t. fig. 31st Dec. 1958.

1959 17. The Genus Pterostylis R. Br. (Orchidaceae) in North Queensland.
Ibid., 27(122):3-5. 31st March, 1959.

18. The Genus Habenaria (Orchidaceae) in Australia.
Ibid., 27(124):3. 30th. Sept. 1959.

1960 19. A New Species of Taeniophyllum (Orchidaceae) from the Tablelands of North Queensland. ((T. flavum))
Ibid., 28(125):7-8, t. fig. 31st March 1960.

20. A New Species of Oberonia (Orchidaceae) from North Queensland. ((O. attenuata))
Ibid., 29(126):3-4. t. fig. 22nd Dec. 1960.

1961 21. Tainia parviflora.
J. Orchidol. 2(1):14-15. t. fig. Feb-March 1961.

22. Malaxis xanthochila (Schltr.) Ames et Schweinf. (Orchidaceae)
Nth. Qld. Nat. 29(127):3-4. t. fig. 31st March 1961.

23. Bulbophyllum baileyi
J. Orchidol. 2(2):54-55. t. fig. April-May 1961.

24. An Apology. ((Oberonia attenuata Dockr.))
Nth. Qld. Nat. 29(128):6. 30th June 1961.

25. Cadetia hispida (A. Rich.) Schltr.
J. Orchidol. 2(3):92-93. t. fig. June-July 1961.

26. A New Habenaria (Orchidaceae) for North Queensland. ((H. papuana Krzl.))
Nth. Qld. Nat. 29(129):3-4. t. fig. 30th Sept. 1961.

1962 27. Chiloschista phyllorhiza (F. Muell.) Schltr.
J. Orchidol. 3(1):14-15. t. fig. Feb-March 1962.

28. Nervilia dallachyana (F. Muell.) Schltr.
Ibid., 3(2):74-75. t. fig. April-May 1962.

29. Thrixspermum album Rupp.
Ibid., 3(3):114-115. t. fig. June-July 1962.

continued page 15.

The Published Writings of A.W. Dockrill. continued

1962 30. Rediscovery of an Orchid (Bulbophyllum lilianae Rendle) after 44 Years.
Nth. Qld. Nat. 30(132):4-5. t. fig. 30th Sept. 1962.

31. Pterostylis curta R. Br.
Orchideeen. 24(5):91. Oct. 1962.

32. Dendrobium smilliae F. Muell.
Ibid., 24(5):92. Oct. 1962.

33. Cadetia taylori (F. Muell.) Schltr.
J. Orchidol. 3(4):148-149. t. fig. Nov. 1962.

34. The Orchid Luisia ((L. teretifolia Gaud.))
Australian Plants 2(13):26-27. t. fig. Dec. 1962.

35. Dendrobium rigidum
Ibid., 2(13):31-32. t. fig. Dec. 1962.

36. Acriopsis nelsoniana F.M. Bail.
Orchideeen. 24(6):113. t. fig. Dec. 1962.

37. Habenaria muelleriana Schltr.
Ibid., 24(6):115. t. fig. Dec. 1962.

1963 38. Habenaria papuana Krzl.
Ibid., 24(1):140-141. t. fig. Feb. 1963.

39. Chiloschista phyllorhiza (F. Muell.) Schltr.
Ibid., 24(1):140, 142. Feb. 1963.

40. A North Queensland Dipodium ((D. ensifolium F. Muell.))
Australian Plants 2(14):43. t. fig. March 1963.

41. Sarcochilus hillii (F. Muell.) F. Muell.
J. Orchidol. 4(2):58-59. t. fig. May 1963.

42. The Cooktown Orchid (Dockr. et Blake) ((Dendrobium bigibbum))
Australian Plants. 2(15):77-79. t. fig. June 1963.

43. Dendrobium cancroides Hunt.
The Orchadian. 1(1):5-6. t. fig. August 1963.

44. The Orchid Galeola foliata.
Australian Plants. 2(16):123-4. t. fig. Sept. 1963.

45. Geodorum pictum (R. Br.) Lindl.
The Orchadian 1:16-17 t. fig. Oct. 1963.

46. Pterostylis longicurva Rupp.
J. Orchidol. 4(3):108-9. t. fig. Nov. 1963.

47. Dendrobium lichenastrum (F. Muell.) Krzl.
The Orchadian. 1:28-30. t. figs. 6. Dec. 1963.

48. Dendrobium superbiens Reichb. f.
Australian Plants 2(17):152-153. t. fig. Dec. 1963.

1964 49. Recording a Natural Hybrid - Dendrobium toftii x Dendrobium undulatum (= discolor
The Orchadian 1:40-41. t. fig. Feb. 1964.

50. Diuris aurea Sm.
Australian Plants. 2(18):175-176. t. fig. March 1964.

51. A New Status for a North Queensland Dendrobium (Orchidaceae) ((D. racemosum))
Dockr. et Clemesha
The Orchadian. 1:52-54. 2. t. figs. April 1964.

52. Dendrobium dicuphum F. Muell.
Australian Plants. 2(19):238-240. t. fig. June 1964.

53. A New Combination for a Small North Queensland Epiphyte. ((Dendrobium toressae))
The Orchadian. 1:64-65. t. fig. June 1964. (see No. 55 this list)

continued page 16.

The Published Writings of A. W. Dockrill. continued

1964 54. Phreatia robusta Rogers
Ibid., 1:64-65. t. fig. June 1964.

55. A New Combination for a Small North Queensland Epiphyte. (see No. 53 listed above)
Ibid., 1:79. Aug. 1964.

56. The Eastern Australian Orchid Diuris punctata Sm. - A Critical Review.
Vict. Nat. 81(5):128-138. t. figs. Sept. 1964.

57. A New Species of Gastrodia (Orchidaceae) for Australia.((G. queenslandica))
Nth. Qld. Nat. 32(136):6-8. t. fig. Sept. 1964.

58. A New Species of Bulbophyllum for North Queensland ((B. wadsworthii))
The Orchadian 1:94-96. t. fig. Oct. 1964.

59. A Third Goodyera for Australia. ((G. rubicunda (Bl.) Lindl.))
Ibid., 1:106-107. t. fig. Dec. 1964.

60. A New Combination for a North Queensland Orchid. ((Bulbophyllum clavigerum (Fitzg.) Dockr.))
Ibid., 1:106-107. t. fig. Dec. 1964.

61. Dendrobium discolor Lindl. A Review of the Species in Australia.
Australian Plants. 3(21):28-30. t. fig. Dec. 1964.

1965 62. The Genus Aphyllorchis Blume in Australia. ((A. queenslandica and A. anomala))
The Orchadian 1:115-117. 2 t. figs. Feb. 1965.

63. The Genera Diplocaulobium and Ephemerantha in Australia. ((E. convexa, D. glabrum and D. masonii))
Ibid., 1:132-134. 3 t. figs. April 1965.

64. A New Combination for an Australian Habenaria. ((H. ferdinandii var. arnhemica))
Ibid., 1:149-151. 2 t. figs. June 1965.

65. A New Species of Habenaria. ((H. anomala))
Ibid., 1:150-151. t. fig. June 1965.

66. Oberonia attenuata Dockr.
Ibid., 1:160-161. t. fig. June 1965.

67. The Genus Eria Lindl. in Australia. ((E. intermedia, linariiflora, liparoides and inornata.))
Australian Plants. 3(23):119-128. 6 t. figs. June 1965.

68. The Genus Spathoglottis in Australia. ((S. paulinae))
The Orchadian 2:2-4. 2 t. figs. Aug. 1965.

New Names.

Aphyllorchis anomala 62.
Aphyllorchis queenslandica 62.
Bulbophyllum macphersonii var. spathulatum 13.
Bulbophyllum revolutum 14.
Bulbophyllum wadsworthii 58.
Corybas abellianus 6.
Dendrobium canaliculatum var. pallidum 10.
Dendrobium ruppianum var. magnifica 7.
Eria intermedia 67.
Gastrodia queenslandica 57.
Habenaria anomala 65.
Oberonia attenuata 20.
Pterostylis carinata 3.
Taeniophyllum flavum 19.
Taeniophyllum lobatum 12.

New Status and Combinations.

Bulbophyllum clavigerum 60.
Dendrobium discolor var. discolor forma broomfieldii 61.
Dendrobium discolor var fimbrilabium 61.
Dendrobium discolor var fuscum 61.
Dendrobium racemosum 51.
Dendrobium toressae 53, 55.
Diplocaulobium masonii 63.
Habenaria ferdinandii var arnhemica

New Records to Australia.

Goodyera rubicunda (Bl.) Lindl. 59
Habenaria papuana Krzl. 26.
Tainia parviflora Schltr. 15.

Collaborators.

Blake, S. T. 42.
Clemesha, S. C. 51.
Hatch, E. D. 11.
St. Cloud, S. F. 13, 14, 15.

Phillip H.Colman, 12 Wetherill Street, Narrabeen, New South Wales.

THE ORCHADIAN

OCTOBER – DECEMBER, 1965 PRICE: 30 cents PAGE 17
VOL. 2, No. 2

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
Vice-Presidents: Eric Gordon
J.H. Scott
Hon. Secretary: R.G. Napier
Asst. Hon. Sec.: A. Reeves
President: W.H. Murdoch
Treasurer: E. Marygold
Records Sec.: R.J. Curtis
Editor: M.J.G. Corrigan
Asst. Editor: S.C. Clemesha

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDE
STH. YARRA, S.E.1, VIC
10 OCT 1966

RESIGNATION OF COUNCILLOR.

It is with regret that the Council has to announce the resignation of Jack Evans from the position of Assistant Honorary Secretary. Increased business responsibilities have forced Jack to reduce his society activities, though I am informed that he will continue in the position of Secretary for the Warringah Group. A position he has so ably held since the formation of the Group, rendering wise counsel and backing his President during the difficult formative period. To fill the vacancy created by Jack's resignation I am happy to be able to report that Mr. A. Reeves has accepted Councils invitation to serve as Assistant Honorary Secretary for the remainder of Council's term of office.

ADDENDUM TO INDEX - THE ORCHADIAN - Vol. 1 Nos. 1-12.

Several typographical errors have occured in the above Index and for your benefit the correct spelling of each is listed below:

Arethusa tetrapetala
Dendrobium lichenastrum var. prenticei forma prenticei
Dendrobium pugioniforme
Polystachya
Pterostylis vittata

The back page of this Index which lists all drawings contained in volume one contains two spelling errors which are spelt correctly hereunder.

Dendrobium toftii
Pterostylis vittata

NATIVE ORCHIDS OF TASMANIA - By M.J. Firth.

This 90 page book is now available from most large booksellers and will provide the enthusiast with a very comprehensive picture of the orchids of Tasmania. The book measures 5.5/8" x 8¾" with 18 pages of plates. The price 32/6 ($3.25).

OUR NATIVE PHALAENOPSIS.

Phalaenopsis amabilis Blume var. rosenstromii (F.M. Bail.) is a particularly attractive orchid. The plant itself has a superficial resemblance to some of the larger Australian specimens of Rhinerrhiza Rupp. The foliage is rarely found in perfect condition, owing to the depredations of caterpillars, etc. Sometimes the plant is destroyed entirely.

The large white flowers are borne on long, often branched scapes, the orange-red markings on lip and column enhance the beauty of the elegant flowers.

In Queensland this orchid is known as "The Goat-eared Orchid". In reference to the large drooping petals, usually it is called "White Moth".

It grows on rough-barked trees, on vines, and on granite boulders in dense jungle country at Mount Spec and on the Mossman River, in North Queensland, at a maximum altitude of 1,500 feet.

Flowering period - December-February.

SOME ASPECTS OF ORCHID HYBRIDISATION.

R.G. Curtis
B. Sc.

In this article it is proposed to introduce to the reader some of the various aspects both theoretical and practical, that concern the development of orchid hybrids.

The field of hybridisation in orchid culture is both challenging and rewarding, only only has to look at the magnificent Cymbidium, Cypripedium and Dendrobium hybrids of today to realise this.

The challenge to improve upon nature has always been the forefront of mans ambition and orchids are no exception.

Firstly the hybridist must have a very definite idea of what he hopes to achieve, therefore we must review the general aims of hybridisation, however the definition of a hybrid must be given before these aims can be discussed.

The deliberate production of a hybrid can be termed generally as the incorporation of one or more desirable properties, of two parents into a single progeny.

These properties can be any one of the following:

(a) Increased floral size.
(b) Increased number of flowers born by the plant.
(c) Improved floral texture.
(d) Improved floral shape.
(e) The introduction of desirable colouration.
(f) The production of hardier and more easily cultivated plants.

No further discussion is really necessary on the above properties as they speak for themselves, also, as with each hybrid contemplated, the properties of the parents have to be considered individually because of the large variation found from genus to genus of orchids and thus no hard and fast ruling can be made that would adequately cover all orchids.

Let us now review some of the basic theories underlying the formation of hybrids, or should it be more aptly termed a study of genetics.

In 1865 a paper was published by Mendel describing his experiments with various types of peas. Mendel in this paper put forward the first ideas of predictable breeding. These ideas were lost to science until 1900, whereupon the full importance of his findings was realised by several men and the branch of science known as genetics was born. Since then rapid progress has taken place in this field of endeavour.

We shall return to Mendel's hypotheses further on in this article where the practical aspects of the application of his theories are discussed.

An understanding of the factors governing heredity namely chromosomes and genes should accompany any account of the development of hybrids.

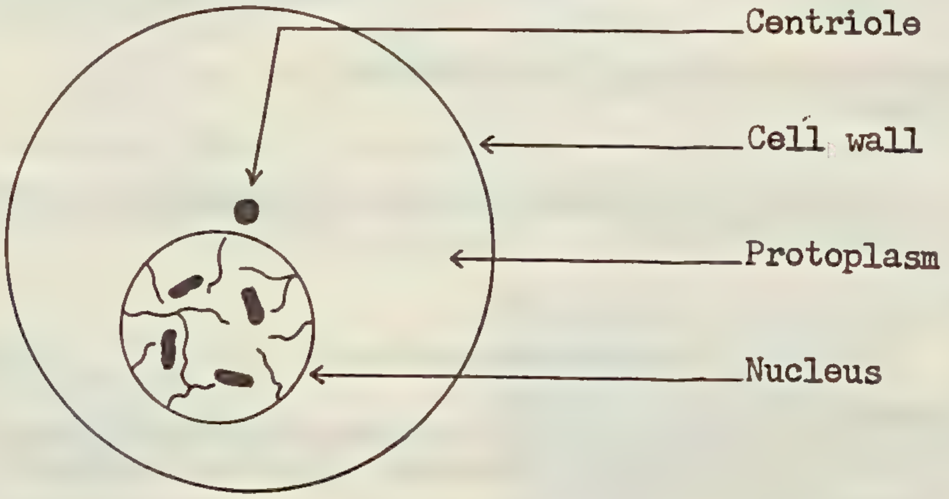


Figure 1. THE CELL

The basic structure of all living matter is the unit cell (fig. 1.) these can be seen with the aid of a microscope, they are generally spherical in shape, consisting of a membraneous outer covering, inside this membrane is a relatively clear semi-fluid called cytoplasm. Within the cytoplasm are situated several bodies, one small body or centriole is found lying close to a larger dark coloured mass or nucleus, within the nucleus are the chromosomes.

Chromosomes when viewed under a microscope have thread-like structures and carry the heredity factors or genes as they are termed, each chromosome has many genes situated along its length.

continued Page 19.

Some Aspects of Orchid Hybridisation. continued

Recent research has revealed that the chromosome structure consists of a series of bands, each band is thougt to represent a gene or area of genetic influence.
The gene is the basic heredity factor which is transmitted via, the chromosomes from the parent to the offspring through each successive generation.
Such things as colour, shape, size, texture, etc. are governed by genes and so a study of their transference from one generation to another can be of importance to the hybridist.
First let us see how chromosomes are transferred from one plant to another.
At a certain stage of development a cell divides into two identical cells and during this process the chromosomes also divide into two equal sets, one set being retained by each cell, this process of cell division is called mitosis and the step by step process is illustrated in fig. 2.

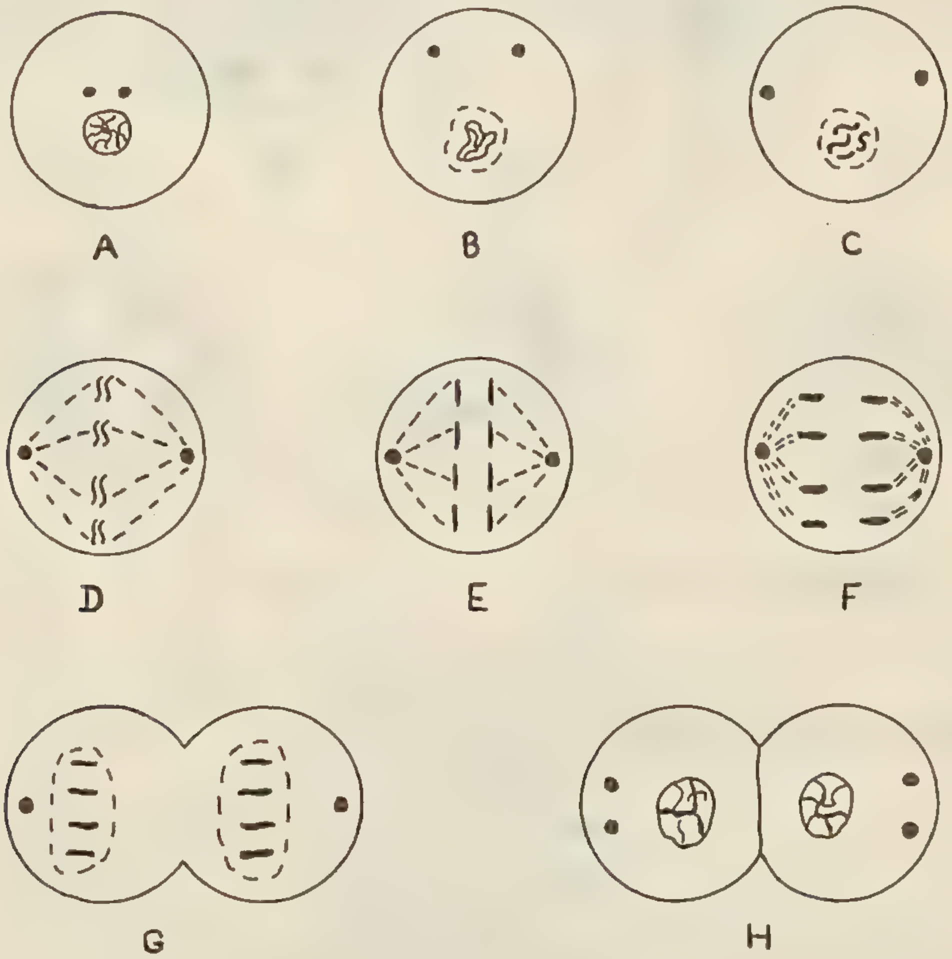


Figure 2. MITOSIS NORMAL CELL

The process of mitosis can be described in four stages as follows:

(a) Prophase. (Figures A, B and C represent the various changes occurring in this phase). The centriole divides into two and each half moves to the opposite sides of the cell, these centrioles are connected to the nucleus by a spindle of delicate fibres called the achromatic spindle. During this time within the nucleus a continuous thread is formed which breaks into segments forming the chromosomes, the nuclear wall in the meantime disappears.
(b) Metaphase. This is the stage at which each chromosome divides into two identical chromosomes, (See D in fig. 2.)
(c) Anaphase. (Represented by E. and F.). Each set of chromosomes travels along the achromatic spindle towards the centrioles, the chromosomes gradually lose their identity and the nuclear wall reappears.
(d) Telephase. (G. and H.) Here the cell divides into two equal cells each with its own centriole and nucleus containing a set of chromosomes identical to those of the original cell.

continued Page 20.

Some Aspects of Orchid Hybridisation. continued

The above type of mitosis takes place when a plant grows, however, another special type of mitosis takes place in the formation of reproductive cells as found in pollen or egg cells, this is illustrated below in fig. 3. Again this is a four stage process.

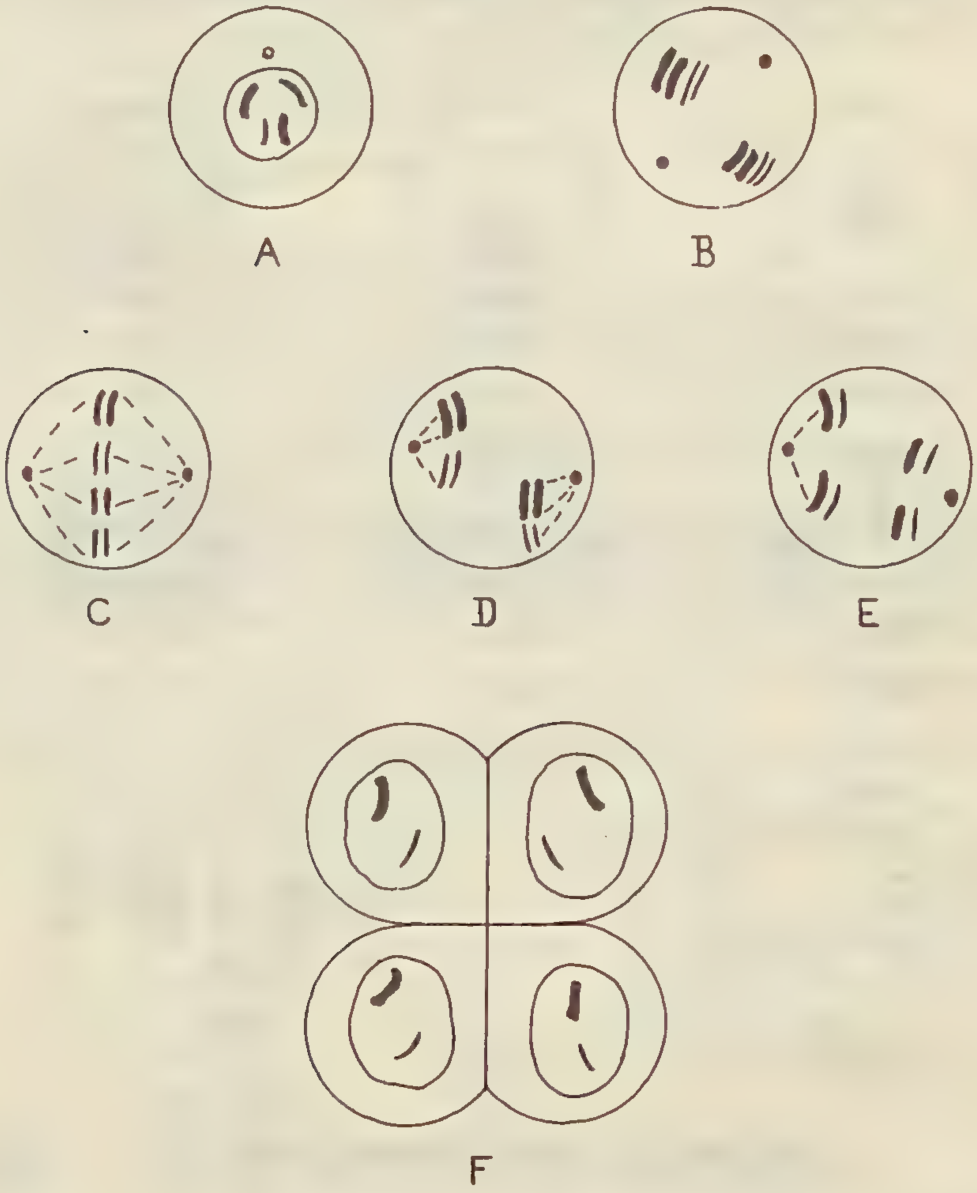


Figure 3. MITOSIS OF SEX CELLS

(1) A nucleus with four chromosomes, one pair (thick) decended from one parent of the plant, the other (thin) pair from the other parent. (a)

(2) At the metaphasic stage each chromosome has doubled, these doublets have then paired up with another chromosome doublet. (b)

(3) During anaphase the chromosome pairs travel along the achromatic spindle becoming aligned across the centre of the cell. The chromosome pairs becoming separated, not as individual chromosomes but as whole chromosome pairs, they then separate into individual chromosomes. Note the arrangement. (c, d, e.)

(4) During telephase the cell divides into four cells, each having only a single set of chromosomes. (f)

continued page 21.

Some Aspects of Orchid Hybridisation. continued

At fertilisation the sperm unites with the egg to form a single cell with two sets of chromosomes. From this cell, by means of normal mitosis the body of the plant develops.

Returning to Mendels work one will see the practical aspects of chromosome transference from parent to offspring. In his experiments Mendel crossed varieties of peas, each with a single differing, contrasting trait, for example a pea with a tall habit of growth was crossed with a dwarf type of pea, peas with purple flowers were crossed with peas having white flowers.

In the first generation one of these traits became dominant, the other recessive, for instance, with the cross of the purple and white flowering peas all the first generation plants had purple flowers.

If this first generation was selfed and allowed to produce a second generation the original traits of the grand parents reappeared in a definite ratio of three to one. That is, three out of every four plants had purple flowers, the fourth having white flowers.

This discovery was highly significant in that it proved that the transference of the heredity trait from parent to offspring is brought about by a discreet body, the gene, and not through the intermingling of blood or some similar substance.

Below figure 4 illustrates how this is achieved:

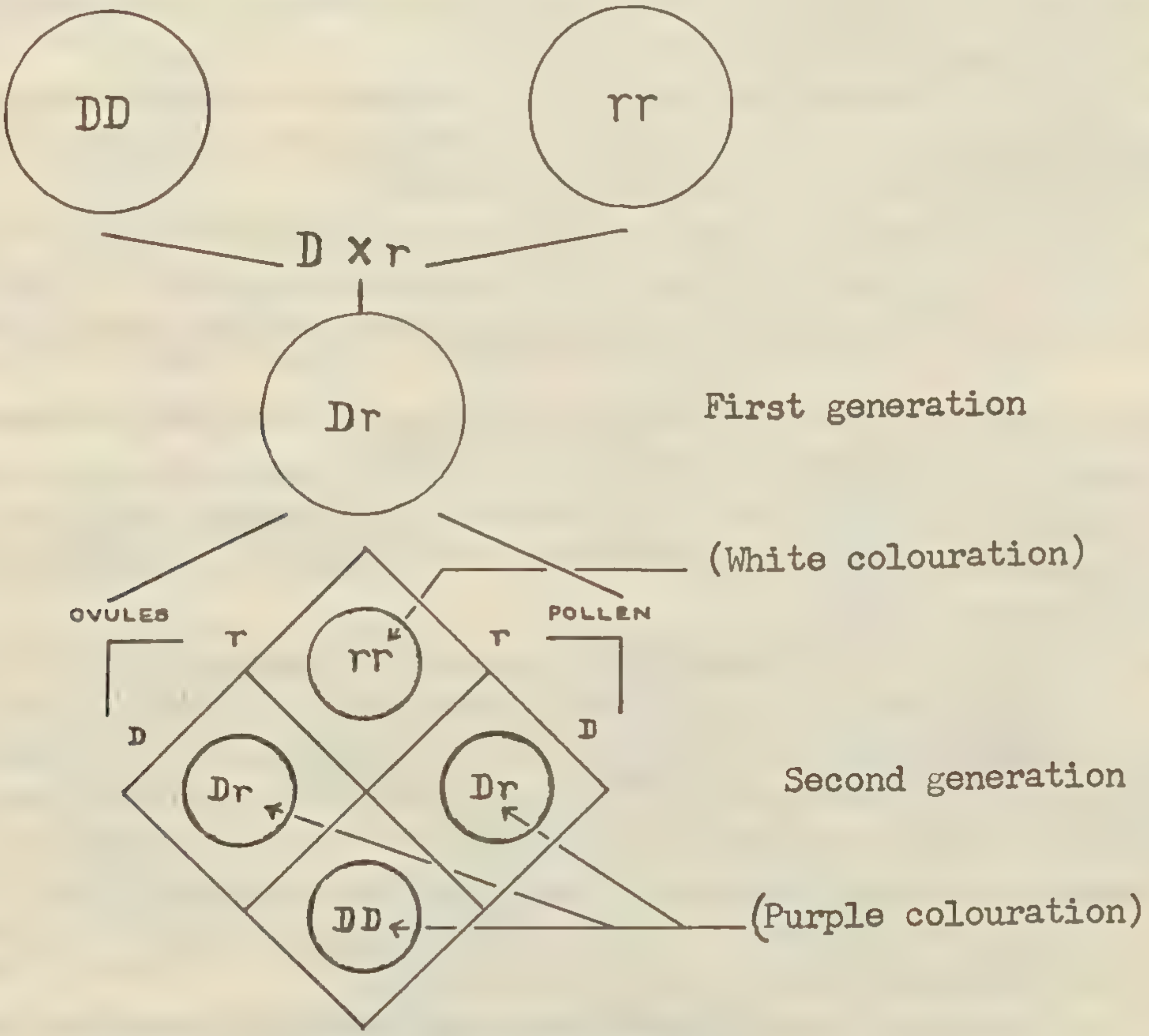


Figure 4. THE TRANSFERENCE OF HEREDITY TRAITS (SINGLE TRAIT)

"D" is the chromosome containing the dominant gene e.g. purple colouration, while "r" is the chromosome containing the recessive gene e.g. white colouration.

When a parent forms its sex cells the chromosomes segregate and one of each pairs up with that of the other parent in the first generation.

Similarly, when the first generation hybrid forms its sex cells the individual chromosomes segregate. The sex cells being pure, that is each carries either a "D" or an "r" gene.

continued page 22.

Some Aspects of Orchid Hybridisation. continued

Upon the formation of a second generation these sex cells combine at random, for example, "D" female cells are fertilised by either "D" or "r" sperm cells in proportion to their abundance and vice versa. The first generation plants in figure 4 are indistinguishable from one of the parents in respect of the particular trait being studied e. g. both may have purple flowers. However, the difference in their genetic structure can be proven if we produce a second generation from this first generation.

In this case reference back to figure 4 indicates two possible results of the combination of "D" and "r" chromosomes from the first generation, namely that all the offsprings bearing a chromosome having the dominant gene "D" will show the characteristics of the original parent bearing that trait e.g. purple colouration. While those offsprings bearing only the recessive genes "r" and no dominant gene "D" will show the trait of the original parent bearing the recessive trait e. g. white colouration.

The position becomes more complicated when the case of two different traits is taken. Here the first generation hybrid in the formation of a second generation produces four different sets of sex cells (figure 5 ab, aB, Ab, AB) and it is seen from figure 5 that the random combination of these cells at fertilisation produces sixteen possibilities.

However, a closer look reveals that for each individual trait the three to one ratio of dominant trait to recessive trait is maintained, in this case twelve possibilities to four possibilities.

The number of plants having both dominant traits however, is nine in every sixteen, whilst the number of plants having double recessive traits is only one in every sixteen.

To elaborate upon this let us take the hypothetical case of a plant having both a dominant gene e. g. height and a recessive gene e. g. white coloured flowers, when crossed with a plant having both a recessive gene e. g. dwarf growth and a diminant gene e. g. purple coloured flowers. The first generation would have tall growth and purple coloured flowers.

However, the second generation would have only one in every sixteen plants with dwarf growth and white coloured flowers (double recessive aa bb figure 5), nine out of every sixteen plants would exhibit tall growth with purple flowers (double dominant AABB, AaBB, AaBb, AABb figure 5), while for each dominant trait twelve out of every sixteen plants would have purple flowers and similarly twelve out of sixteen plants would have tall growth. (Single dominant Aabb, aaBb etc. figure 5).

It is seen that the greater the number of traits present the more complicated the system becomes and the larger the number of random combinations are possible.

Mendel's observations can be used by the hybridist to predict the character of offsprings from two parents. However, there are complications because of the large number of individual traits that have to be observed and also a further complication arises if the parents themselves are hybrids, in this latter case unless their genetic parentage is known the task of predictable breeding can only be an educated guess at the best.

If the case of the hybridisation of two pure species is taken then it can be predicted as to particular trait e. g. a certain colour will dominate, generally the one colour will predominate in all the plants of the first generation, similarly all the other traits will follow the same scheme.

A careful study of this first generation will yield valuable information for what should be expected if a second generation be produced. For instance, take the hypothetical example of the hybridisation of a plant having a well shaped flower with a poor colouration with a plant having a poor shaped flower with good colour when all the first generation plants bear poorly shaped and coloured flowers. According to Mendel's findings a second generation should yield one plant in sixteen as having both the desirable properties, namely good shape and colouration.

In practice because of the large number of traits involved this may not be entirely realised, however, an approach to the perfect cross can be achieved, provided of course a large enough number of plants of this second generation are allowed to flower.

It should be stressed that in any cross the larger the number of plants produced and allowed to flower the greater the chances are of obtaining what was desired out of the cross.

A case history of the dominant genes of a particular species can be built up if a large enough number of different crosses involving this species are studied, naturally one can not be certain that these genes will dominate in a new cross, however, an educated guess can be made as to whether the particular cross contemplated will be a worthwhile undertaking.

So much for the Mendelian side of hybridisation, now one must look at what external influences can be used in hybridisation.

If the structure of the chromosomes and consequently the genes, of the sex cells of a plant can be altered by either physical or chemical means, then their original influence upon the structure of a hybrid formed by them is changed and so a plant of entirely different character is produced, this of course may be either good or bad depending upon the type of change that has taken place. Several methods have been used to achieve this. One such method is the use of radiation of some type; ultra violet light, gamma rays and X rays have all been used with some remarkable success to induce genetic changes in plants.

continued page 24.

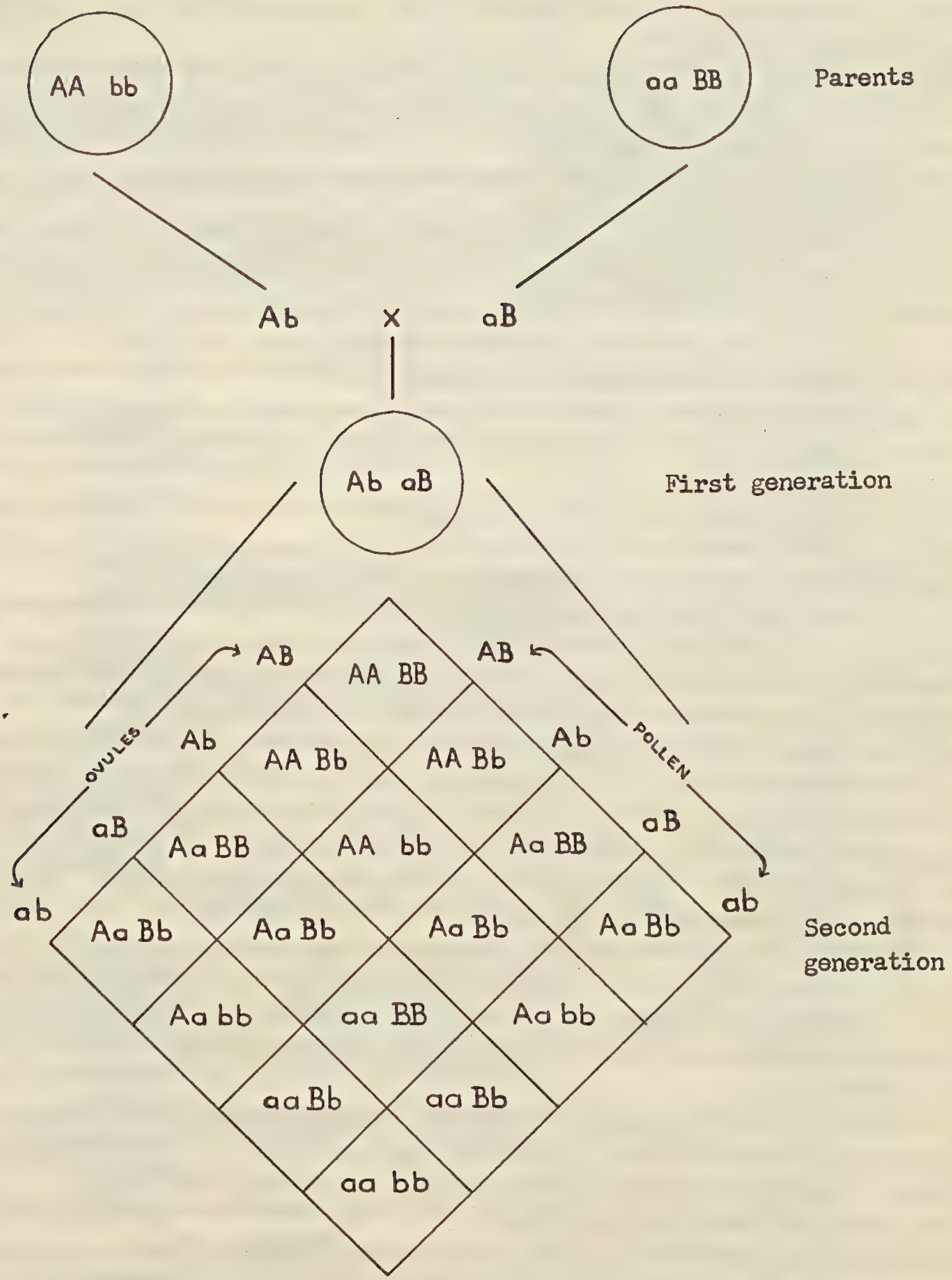


Figure 5. THE TRANSFERENCE OF TWO HEREDITY TRAITS

Some Aspects of Orchid Hybridisation. continued

Radiation can be used in a number of ways, the pollen or ovum of the plant can be irradiated prior to fertilisation, the seed pod can be irradiated during the maturation of the seed and finally the mature seed itself can be irradiated.

The effects of radiation on living matter is generally destructive and the destruction of parts of the chromosomes involved is what is intended in this case, naturally if too much radiation is used then the chromosomes are rendered useless and the seed becomes sterile and will fail to germinate. Because there are potential dangers involved in the use of radiation it is suggested that these techniques be left to the experts in this field.

Another manner in which the growth characteristics of a plant can be changed is by changing the number of chromosomes in the plant cells.

Quite often articles have appeared in the various orchid journals mentioning polyploid plants, that is plants that have more than the normal number of chromosomes. In particular the genus Cymbidium has been studied fairly closely as it is recognised that there do occur in nature tetraploid forms of some Cymbidium species.

These tetraploid forms generally have superior qualities to those of the normal diploid forms, namely increased floral size, improved floral texture and more vigorous growth.

Biologists recognising the value of polyploid plants have devoted much research work in the last two decades into methods for the production of polyploids.

The earliest workers devoted their attention to the use of heat treatment methods and also cold-heat shock methods, the former method was used in particular by Randolph in 1941 to successfully produce polyploid maize, however, all these methods have been replaced by the use of a chemical called colchicine.

Colchicine was first discovered by Pernice in 1889, however its use for the induction of polyploid characteristics into plants was not put to use until 1938.

This chemical is a white powder readily soluble in water and is obtained from a number of plants of the genus Colchicum, in particular C. autumnale L. and C. luteum Baker.

Upon making contact with colchicine a cell undergoing mitosis (cell division) is arrested at the stage when the chromosomes have doubled (metaphase).

The spindle fibres of the cell are reduced and their structure is changed, this produces a restitution nucleus, and once the influence of colchicine is removed, the cell now containing double the number of chromosomes undergoes normal mitosis dividing into two cells each with the double the number of chromosomes of the original parent cell before treatment.

In the practical use of colchicine certain factors have to be observed, namely a) the concentration of the drug; b) the exposure time and; c) the number of chromosomes of the species involved.

The concentration generally used is a 0.2% solution in water, this can be applied to the roots of the plant usually by soaking alternately for 12 hours in the colchicine solution followed by 12 hours in water, this procedure must be repeated for a period of 3 to 6 days. The same effect can be achieved by maintaining the plant in continuous contact with the solution for a minimum of 48 hours.

Young seedlings can be treated with a drop of this solution each morning and night, during this procedure care must be taken to ensure that the solution does not evaporate as the concentration would increase to lethal proportions for the plant.

It should be emphasised that success does not always follow with polyploid induction by colchicine, reduced fertility of seed, longer growth periods and lack of uniformity are some of the disadvantages that can arise. However, these can be avoided if certain principles are observed, namely; a) treatment of a large proportion of plants in order to obtain as many different types as possible to aid selection of suitable types; b) the use of these selected types for further breeding to produce improved characteristics from the initial "raw" polyploid parents; c) careful selection of initial diploids to be treated.

One occasionally hears comments on the action of plant hormones upon the growth characteristics of plants, it should be pointed out however, that the effect of these substances, for example gibberellic acid, indole acetic acid etc., on the plant lasts only as long as they remain in contact with the plant, once they are removed the plant reverts to its normal growth habit.

The use of these substances should not be confused with that of colchicine or radiation treatment as the latter have permanent effects upon the plants.

It can be seen from the proceeding article that if the hybridist develops a little insight of the basic principles of heredity than a better selection of parents and consequently the production of superior hybrids is possible. However emphasis has been made that it is not always easy to predict exactly the characteristics of a hybrid but at least an educated guess can be made in most cases.

R.J. Curtis, 11 Tudar Road, Sutherland. N.S.W.

THE FLOWERING PERIODS OF AUSTRALIAN & NEW ZEALAND ORCHIDS - Section 1 N.S.W.

E.G. Gordon

My intention in presenting the accompanying chart of Orchid flowering periods is not only to show when they are in flower but in many cases to provide a guide to their identification when found: it is quite obvious that a Caladenia found in August is most unlikely to be the var. picta of Caladenia alba and will almost certainly be C. alba itself or that an Acianthus found in September will almost certainly be A. fornicatus not A. exsertus. Advisedly I say "unlikely" and "almost certainly" for the reason that the flowering period does not open and shut like a bush house door and the periods I have shown are the principal periods of flowering. Many orchids start to make a showing before the main flush of flowering and odd specimens continue on long after the others are finished. I have omitted some species from the list as they have not been seen since the original recording and if you should be lucky enough to find an orchid that is not in the list it will be so rare that it is either one of the species which I have omitted or a new one. In either case it will be necessary to have it identified by an authority such as the National Herbarium or one of the members of this society who specialise in the particular genus concerned. It is my intention to present tables applying to the orchids of other states in future issues of this Journal.

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Acianthus	caudatus							X	X	X	X		
	exsertus				X	X	X						
	fornicatus					X	X	X	X	X			
	reniformus				X	X	X	X	X	X			
Adenochilus	nortonii											X	X
Bulbophyllum	aurantiacum							X	X	X	X		
	bracteatum										X	X	
	crassulifolium										X	X	
	elisae					X	X	X	X	X	X	X	
	exiquum			X	X	X							
	globuliforme										X	X	
	minutissimum										X	X	
	weinthalii			X	X	X							
Burnettia	cuneata									X	X	X	
Caladenia	alba						X	X	X	X			
	var. picta					X	X						
	anqustata									X	X	X	
	aurantiaca								X	X	X	X	
	caerulea							X	X	X			
	carnea								X	X	X	X	
	var. gigantea									X			
	var. pygmoea								X	X	X		
	clavigera									X	X	X	
	conquesta										X	X	X
	cucullata										X	X	
	deformis						X	X	X				
	dilatata									X	X	X	X
	var. concinna								X	X			
	dimorpha										X	X	
	filamentosa								X	X	X		
	var. tentaculata								X	X	X		
	holmesii								X	X			
	iridescens									X	X	X	
	iyallii	X										X	X
	patersonii									X	X		
	var. arenaria									X	X		
	var. concolor									X	X		
	reticulata								X	X	X		
	tessellata									X	X		
	testacea								X	X	X		
	tutelata									X			
Caleana	major	X								X	X	X	X
	minor	X								X	X	X	X
	nublingii	X											X

The Flowering Periods of Australian and New Zealand Orchids - Section 1. N.S.W. continued

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Calanthe	triplicata	X										X	X
Calochilus	campestris									X	X	X	
	gracillimus	X											X
	grandiflorus	X										X	X
	paludosus										X	X	X
	saprophyticus									X	X		
	robertsonii	X								X	X	X	X
Chiloglottis	cornuta											X	X
	dockrillii											X	X
	formicifera									X			
	gunnii	X										X	X
	reflexa	X	X	X	X	X							
	trapeziformis									X	X		
	trilabra			X									
Corybas	aconitiflorus					X	X	X					
	diemenicus							X	X				
	dilatatus						X	X	X				
	fimbriatus				X	X	X	X					
	fordhamii							X	X				
	pruinosus				X	X	X	X					
	undulatus					X	X						
	unguiculatus						X	X					
Cryptanthemis	slateri										X	X	
Cryptostylis	erecta	X	X	X	X							X	X
	hunteriana	X	X	X							X	X	X
	leptochila	X	X	X								X	X
	subulata	X	X	X								X	X
Cymbidium	canaliculatum									X	X	X	X
	forma aureolum										X	X	
	madidum											X	X
	suave	X								X	X	X	X
Dendrobium	aemulum								X	X	X		
	beckleri								X	X	X		
	cucumerinum	X	X										X
	delicatum									X	X		
	falcorostrum								X	X	X		
	gracilicaule								X	X	X		
	gracillimum									X	X		
	kingianum								X	X	X	X	
	var. pulcherrimum									X	X		
	var. silcockii									X	X		
	var. album								X	X	X		
	linguiforme								X	X	X	X	
	monophyllum	X							X	X	X	X	X
	mortii	X	X	X	X	X							
	pugioniforme										X	X	
	schneiderae	X	X										X
	speciosum								X	X	X		
	var. hillii									X	X		
	var. curvicaule									X	X		
	striolatum									X	X	X	
	suffusum								X	X	X		
	tenuissimum								X	X	X		
	teretifolium							X	X	X	X		
	var. fairfaxii									X	X		
	tetragonum								X	X	X		
	var. hayesianum									X	X		
Dipodium	hamiltonianum	X	X								X	X	X
	punctatum	X	X	X							X	X	X
Diuris	abbreviata								X	X	X	X	
	aequalis									X	X	X	

The Flowering Periods of Australian and New Zealand Orchids - Section 1. N.S.W. continued

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Diuris	althoferi										X		
	aurea								X	X	X	X	
	bracteata										X		
	brevissima										X	X	
	citrina										X	X	
	colmanae									X	X		
	cucullata										X	X	
	cunielabris										X	X	
	curtifolia										X		
	dendrobioides										X		
	flavopurpurea										X		
	brevifolia										X	X	
	goonooensis										X		
	latifolia										X		
	lineata										X		
	longifolia										X	X	
	maculata							X	X	X	X	X	
	maculosissima										X		
	palachila									X	X		
	pallens									X	X	X	
	pedunculata	X							X	X	X	X	X
	var. gigantea										X		
	platichila										X		
	polymorpha										X		
	punctata var. punctata forma punctata									X			
	" " " blakneyae										X	X	
	" " " sulfurea										X		
	" " alba "									X	X		
	" " minor										X	X	
	" " longissima										X	X	
	rhomboidialis										X	X	
	secundiflora									X	X		
	semilunulata										X		
	sheaffiana										X		
	striata										X		
	sulphurea										X	X	X
	tricolor										X		
	venosa	X	X										X
	victoriensis										X		
Epipogum	roseum											X	
Eriochilus	cucullatus	X	X	X	X	X							
Galeola	cassythoides								X	X	X	X	X
	foliata	X										X	X
Gastrodia	sesamoides	X							X	X	X	X	X
Geodorum	pictum	X	X										X
Genoplesium	baueri		X	X	X								
Liparis	coelogynoides	X	X	X									X
	reflexa				X	X	X	X					
	simmondsii	X	X							X	X	X	X
	habenarina	X	X	X									
Lyperanthus	nigricans								X	X	X		
	suaveolens										X		
Microtis	biloba										X	X	
	bipulvinaris	X									X	X	X
	magnadenia											X	X
	oblonga										X	X	X
	parviflora	X									X	X	X
	unifolia	X									X	X	X
Oberonia	muelleriana							X					
	titania						X	X					
Orthoceras	strictum	X									X	X	X

The flowering Periods of Australian and New Zealand Orchids - Section 1. N.S.W. continued

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peristeranthus	hilli									X	X		
Phaius	australis									X	X		
	tankervilliae										X	X	
Prasophyllum	acuminatum	X	X	X	X	X							X
	alpinum	X	X										X
	anomalum		X	X	X								
	ansatum	X	X	X	X								
	archeri	X	X	X	X								X
	aureoviride			X	X	X							
	var. elmae			X	X	X						X	X
	australe											X	X
	beaugleholei		X	X									
	bowdenae		X	X	X								
	brevilabre	X							X	X	X	X	X
	densum	X	X	X	X	X							X
	eriochilum		X	X	X								
	fimbriatum	X	X	X	X	X							
	filiforme		X	X	X								
	flavum	X										X	X
	frenchii	X								X	X	X	X
	fuscum									X	X	X	X
	gracile										X	X	X
	hopsonii	X											
	laminatum		X	X	X								
	longisepalum		X	X	X								
	morrisii	X	X	X	X								
	muelleri								X	X	X	X	X
	nichollsianum	X	X	X	X	X							
	mucronatum		X	X	X								
	nigricans	X	X	X	X								
	nublingii	X	X	X									
	nudum				X								
	odoratum	X							X	X	X	X	X
	patens									X	X	X	X
	plumosum	X											
	reflexum				X	X							
	rogersii	X											
	rufum											X	
	ruppii	X	X	X	X								
	var. menaiense				X								
	sagittiferum			X									
	striatum				X	X	X						
	suttonii	X	X										X
	transversum		X	X									
	trifidum	X	X	X	X	X	X						
	unicum						X						
	uroglossum										X	X	
	viride			X	X	X	X						
	wilsoniense												X
	woollsii	X	X									X	X
	elatum								X	X	X		
	fitzgeraldii												
	despectans												
	exiquum											X	
	mollissimum				X								
	obovatum				X								
Pterostylis	acuminata			X	X	X	X						
	alata					X	X	X	X				
	alpina	X											X
	baptistii							X	X	X	X		
	barbata									X	X		

The Flowering Periods of Australian and New Zealand Orchids - Section 1. N.S.W. continued

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pterostylis	coccinea	X	X	X									
	concinna					X	X	X	X				
	curta							X	X	X			
	cycnocephala							X	X	X	X		
	daintreana				X	X	X	X					
	boormanii										X	X	
	falcata	X										X	X
	fischii		X	X	X	X							
	furcata	X									X	X	X
	furcillata			X	X	X							
	grandiflora				X	X	X	X	X				
	hildae							X	X	X	X		
	longicurva			X	X	X	X						
	longifolia				X	X	X	X	X	X	X		
	longipetala						X		X				
	mitchellii									X	X	X	X
	mutica							X	X	X	X		
	nana							X	X	X	X		
	nutans				X	X	X	X	X	X	X		
	var. hispidula			X	X	X							
	obtusa				X	X	X						
	ophioglossa			X	X	X	X	X					
	var. collina						X	X					
	parviflora	X	X	X	X	X	X						
	pedoglossa				X	X	X	X					
	pedunculata								X	X	X		
	pulchella				X	X							
	pusilla									X	X	X	X
	var. prominens										X	X	
	var. aciculiformis										X	X	
	reflexa			X	X	X							
	revoluta				X	X	X						
	rufa									X	X		
	squamata									X	X		
	truncata		X	X	X	X	X						
	woollsii										X	X	X
	decurva	X									X	X	X
Rhinerrhiza	divitiflora										X	X	
Rimacola	elliptica	X	X									X	X
Sarcanthus	beckleri									X	X	X	X
	purpuratus									X	X	X	
Sarcochilus	australis										X	X	X
	ceciliae	X									X	X	X
	falcatus								X	X	X	X	
	fitzgeraldii										X	X	
	hartmannii										X	X	
	hillii	X									X	X	X
	olivaceus										X	X	
	spathulatus									X	X	X	
	weinthalii								X	X	X		
Spiranthes	sinensis	X	X	X								X	X
Spiculea	hunteriana	X	X	X	X								X
	irritabilis	X	X	X	X								
Thelymitra	aristata								X	X	X	X	
	carnea									X	X	X	
	chasmogama									X	X		
	flexuosa	X								X	X	X	X
	irregularis									X	X		
	ixioides								X	X	X	X	X
	var. truncata									X	X	X	X
	media								X	X	X		

The Flowering Periods of Australian and New Zealand Orchids - Section 1. N.S.W. continued

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thelymitra	nuda									X	X	X	
	pauciflora	X							X	X	X	X	X
	var. pallida											X	
	rubra								X	X	X	X	X
	var. magnanthera								X				
	venosa	X								X	X	X	X
	var. magnifica											X	X
Thrixspermum	tridentatum	X								X	X	X	X
Zeuxine	attenuata										X	X	

ON PTEROSTYLIS COCCINEA. R.D. Fitzg.

E.D. Hatch

If I were asked to name my favourite orchid, I would reply without hesitation - Pterostylis coccinea. Why? Well I suppose there is something in the old saying that we love best the things we have loved longest. Also it is rather pretty and does very well for me. In fact I have not been able to kill it - which is saying something.

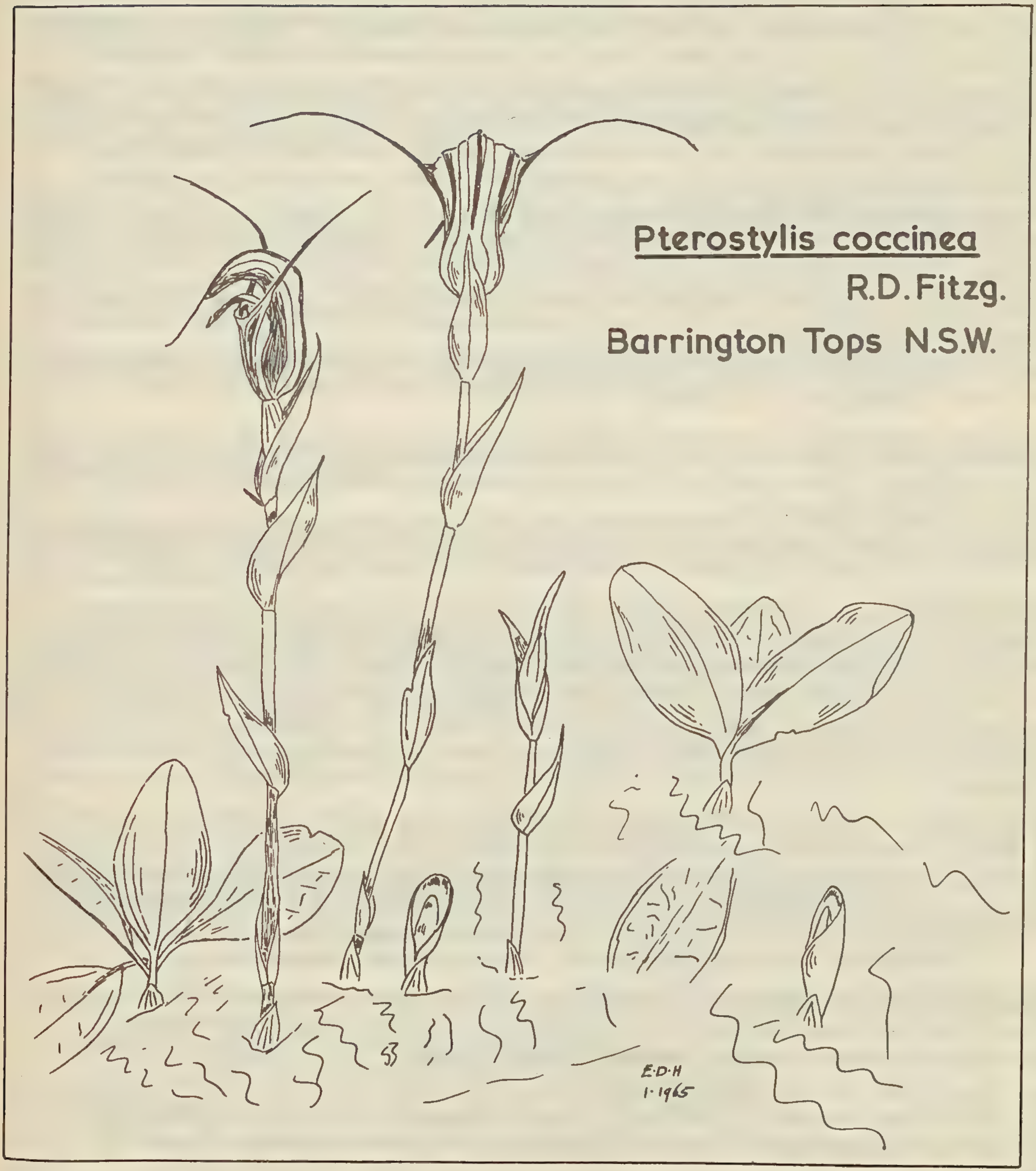
In February of 1953, Alick and Molly Dockrill walked across Barrington Tops and I received, some little time later, a packet of assorted orchid tubers. I tossed these all into one largish pot and sat back to await developments. One by one that spring they came through - Chiloglottis, Spiranthes, Thelymitra and that magnificent Pterostylid, falcata Rog. Reckoning that was the lot, and in any case more than satisfied with my haul, I gave over peering into the pot. Imagine my delight one evening in January, when I found a lone Pterostylis coccinea glowing softly red. Every mid-December since, for ten whole years, I have hovered hopefully over my increasing collection of P. coccinea - will they or won't they flower? And for eight years out of the ten they have. I once had eight plants in flower at the one time - a lovely sight. Finding that they were tough as well as beautiful, I began experimenting with them. I measured and mutilated them, cross - and self pollinated them and buried them deep in the earth.

I keep my plants in six inch earthenware pots, in an unheated glass house, in a 50/50 misture of garden loam and coarsely broken up taraire leaves. I start watering them regularly at the beginning of December and by the middle of the month the characteristic green-striped shoots are showing through. The rosettes have completed their growth by mid-January and the mature plants flower from then till the end of February.

The seed capsule takes 40-45 days to mature from pollination to dehiscence and the rosettes will persist until August-September.

There are two quite distinct leaf forms - a juvenile rosette of oblong-orbicular, petiolate leaves and a mature flowering form with sessile, acuminate bracts. The stage of development depends entirely on the size of the tuber (i.e. on the amount of food reserves available). By retarding a mature plant I have produced small tubers which have grown the following season into juvenile rosettes. The rubicon appears to be 12 mm. diameter. Anything above this will produce a flowering plant while anything below it will develop into a rosette. Each tuber carries several buds, only one of which normally develops. In the event of accident to the leading shoot, bud number 2 will begin to grow, and should anything happen to that, there is a fair chance (depending on the size and vitality of the tuber) that bud number 3 will develop, but these secondary or emergency shoots are always rosettes. If a flowering plant is plucked, leaving a couple of inches of stem attached to the tuber in the soil, the dormant secondary buds will often start away, producing one, two or rarely three rosettes round the base of the cut stem. As a rule, each plant, whether juvenile or adult, produces one large and several smaller tubers on more or less long root fibres. These tubers tend to end up round the sides and at the bottom of the pot, which makes it necessary to repot each season (about September) and spread them uniformly just below the surface. A tuber once got lost near the bottom of the pot and the rhizome failed to reach the surface. But it did manage to grow upwards for 6 cm. and throw a branch 3.5 cm. long with a terminal tuber 2 mm. larger in diameter than the original and 5 cm. higher in the pot. All this between 10 and 20 cm. below the surface of the soil without benefit of light or leaf chlorophyll. The flower is normally solitary but sometimes a second will appear, either from the base of the ovary or from the axil of the floral bract. There is also a green-flowered colour form, with slightly rounder rosette leaves. It is not as hardy as the red. The related New Zealand species Pterostylis trullifolia Hook. f., has an unusual mycorrhizome with long-petiolate, trullifoliate leaves. If anyone has grown Pterostylis coccinea from seed I would be most interested to learn what type of mycorrhizome it develops. Much can be discovered about the relationships of a plant by studying its development from seed.

Edwin D. Hatch, 583 Tane Road, Laingholm Central, Auckland S.W.4. New Zealand.


Pterostylis coccinea
R.D.Fitzg.
Barrington Tops N.S.W.
E.D.H
1.1965

ORCHIDS OF THE WESTERN PLAINS, VICTORIA.

David Jones.

To the west of Melbourne there occurs a vast basalt plain of Pleistocene age. This plain is the largest of its type in the world and has a unique and interesting flora. Gramineae and Compositae provide the principle complex with other families scattered throughout. Orchidaceous plants are not represented by a very large number of species but those present are unusual, principally because of certain unique characteristics. The growth habit in particular is unique to these plains and is quite uniform throughout the various species. The plants are dwarfed but extremely stout and sturdy, just as if they had been compressed from the top. This is not surprising perhaps, if one considers the environment in which they grow. The plain is virtually treeless and the little cover available is provided by taller herbs and Basalt outcrops. Add to this fact that the wind fairly howls across the plain and it is not surprising that we have such a stout resistant habit developed in those species surviving.

The majority of species are also beautifully scented. This is very apparent on a warm spring day when colonies can often be located by the perfume alone. It is interesting to note that all of these perfumes have a very similar spicy smell - perhaps pollination is achieved by the same or similar organism ? The final characteristic is the brilliance of colour in the flowers which occurs more typically in the forms found on the plain than in those found elsewhere. One would expect this concentration of pigments to make them more conspicuous, but this is offset by their short stature rendering them invisible over any fair distance.

Ten species of orchid are found on this Basalt plain; of these at least one variety is endemic and reduced to great rarity. Another species is extinct although there is considerable doubt concerning its validity as a true species.

Diuris pedunculata R. Br. - This is the commonest species of orchid on the plain. Typical specimens grow in scattered, tight clumps of up to 30 tubers per. clump. Vegetative reproduction is very noticeable. Plants from other regions do not show this habit of growth and vegetative reproduction to the same extent.

The flowers differ mainly in the size of the labellum which is large compared with other specimens and is often of a deep orange colouration. In some cases the species is perfumed. Plants are often found on grazing land, the species having the ability to persist quite well for a time.

Diuris palustris Lindl. - This diminutive but extremely sturdy little species also grows in dense scattered clumps. The plants are mostly only a few inches high and often the flowering spike is far shorter than the leaves. The leaves are extremely numerous, filiform and characteristically twisted. They are bright crimson at the base where they join the tuft. The tubers are very large for such a small plant and vegetative reproduction is amply illustrated. The growth habit and floral characteristics of the plants are extremely variable and a bewildering variety of forms can be found within a single colony. This plant is endowed with a heavy spicy perfume which pervades the air at the slightest warmth, often making location quite easy. It favours the slight shelter of Basalt outcrops and is always the first Diuris to flower in Victoria, often being finished by the first week of September.

Diuris fastidiosa R.S. Rogers - This species was found by the lat W.H. Nicholls at Tottenham in August 1923. There is considerable doubt as to its validity as a species and since the original and only colony has long since been oblitereated by road metal, no fresh material is available for study. It can be seen from specimens and drawings that the plant has affinities with both D. pedunculata and D. palustris both of which were recorded from the immediate vicinity. It is very probable that the plants collected arose as a hybrid between the two former species. Forms closely approaching the original description have been collected by the writer at Stawell, Victoria.

Diuris punctata Sm. var. punctata - We are well aware of the extreme variation within this species and its resulting difficulty of classification. On the plain the plants of this species are small especially when compared with their 2 foot brother from the Mornington Peninsular. The spike is congested and the flowers crowded. The plant is often scented.

Diuris punctata Sm. var. albo violaceae Rupp. ex Dockrill. - This is the beautiful Diuris alba of Ewart. This variety is endemic to the plain. It once covered areas measured in square miles, today its distribution consists of three, possibly four small and widely separated colonies. It favours the stony outcrops as its retreat, often with other herbaceous plants as protection.

Weeds constitute a very real threat to this orchid's continued existence, their choking effect on the surrounding flora is all too clear.

continued page 33.

Orchids of the Western Plains, Victoria. continued

The tubers are extremely large and characteristically forked or palmate. Vegetative reproduction is not in evidence. The flowers are extremely variable, very few being pure white; the majority are a suffused lilac and white and are all beatifully scented. Weedicide damage has been noticed on plants in one colony, the leaves and stem being distorted and twisted. This has also been noted in D. palustris and Pterostylis nana.

Thelymitra aristata Lindl. - This species was once abundant throughout the area but is now quite uncommon. The flowers are typically deep blue in colour compared with the normal paler forms. The leaf is typically thick and robust and the flowers are noticeably perfumed. It occurs mainly as scattered individuals rather than colonies.

Prasophyllum fuscum R. Br. - This species occurs scattered over the plain and was often abundant along the creek banks. It is very short and sturdy and the spike rarely exceeds the leaf blade. The plant is tawny in colour, blending in well with the herbage and is consequently hard to locate. It is very strongly perfumed and is now becoming quite rare.

Microtis unifolia Reichenb. - Is abundant over all of the area, differing only in its dumpy stature. It persists quite well on grazed areas.

Acianthus reniformis Schlechtr. - This species favours the shelfter of the Basalt outcrops. It forms dense colonies that only flower well in favourable seasons. The leaves are typically smaller than those from favourable areas and are often severely wind burnt.

Pterostylis nana R. Br. - This species is scattered over the area but is not common. It flowers only in favourable seasons and the plants are reduced to a couple of inches tall. In dry years the rosette withers and dies very early.

Pterostylis mutica R. Br. - Favours sheltered areas in Basalt outcrops and particularly in the beds of ephemeral creeks scattered over the area. It is quite rare, being found at Werribee and Tottenham and is suffering from the effects of civilisation. In past years it has been quite abundant in bountiful seasons.

This completes the list of orchids found on the Basaltic grassland to the west of Melbourne. Much of this vast area is valuable agricultural land and its proximity to Melbourne makes it also ideal for future housing estates. Indeed, already one must turn to the railway lines as the last haven for this flora. It is sincerely hoped that the last traces of these unique species will never be obliterated and lost to future generations of orchid lovers.

David Jones, 7 Yonga Road, Balwyn. Victoria.

DENDROBIUM TERETIFOLIUM R. Br. A REVIEW OF THE SPECIES. continued from Vol. 2 No. 1.

S. C. Clemesha

3. Dendrobium teretifolium var. fasciculatum Rupp Proc. Linn. Soc. N.S.W. pt.3-4, p.157 (1935)

This distinct variety of D. teretifolium differs from the other varieties as follows:

(i) Inflorescence. Normally 2 to 5 racemes are produced, these being clustered together at the base of the terminal leaves of the stem.

(ii) The segments of the flowers are shorter and less recurved than those of the other varieties.

(iii) The mid lobe is devoid of darker markings and its 3 laminal ridges are barely raised and inconspicous.

(iv) The flowering period is at least a month later.

This plant is confined to tropical North Queensland where abundant in mangrove swamps and in more open areas of the well watered parts of the ranges and highlands. It avoids dry and shaded areas.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

NOTES ON THE POLLINATION OF CALEANA MAJOR R. Br.

Leo Cady.

A considerable amount has been written on the pollination of our native orchids and may one add that it is hoped that a considerable amount has yet to be written. The following description of the method of pollination used in one instance by C. major R. Br. was witnessed by the writer at Narooma N.S.W. in October 1961, whilst collecting the same plant for a herbarium record. The method adopted by the plant is as follows: as it is well knwon the labellum of C. major is extremely irritable and before the triggering, was in an erect position, held well above the lateral sepals, thus in a conspicuous and easy position to be mistaken for a landing place by any passing insect. Such was the case in the plant under observation when the insect, a male saw fly (Lophyrotoma leachii Kirby) decided to use the labellum as a landing field, the fly landed in a position with its head facing the narrow end of the labellum lamina, then, apparently caused by the forward momentum of the fly landing, the labellum triggered off, taking the fly with it into the broad column wings with such force that the fly was definitely stunned for some number of seconds (approximately 15 to 20) in a position with its thorax pressed against the pollinia masses and this is the way it was held for approximately 1½ minutes before it could free itself. During the time the fly was struggling, some of the pollinia were scattered over the stigma which is in a favourable position below the anthers, so that in addition to taking the pollinia masses with it the fly also assisted in pollinating the plant under discussion. It is thought that the fly would, if trapped again by a Caleana spp. deposit the pollinia into the stigma of this second plant by the same method as described above.

The author would like to thank Mr. C.E. Chadwick of the Department of Agriculture Sydney, for his assistance in having this insect identified.

L. Cady, P.O. Box 88, Kiama. N.S.W.

Dendrobium kingianum Bidw. FROM NORTH TO SOUTH.

S.C. Clemesha.

Dendrobium kingianum to orchid growers is what "penny reds" are to stamp collectors, there being innumerable forms of both.

D. kingianum is an almost entirely rock dwelling orchid that can be found if one is very lucky, almost as far north as the Tropic of Capricorn near Rockhampton and may possibly be found a short distance further north but the dry climate of central Queensland and D. kingianum's refusal to flower in lowland tropical areas seem an effective barrier to its northern expansion.

It is uncommon or localised from its northernmost station to near Gympie Qld., as far as one can work out from the limited number of recordings.

From Nambour Qld. to central N.S.W. it is abundant but falls into, among all its enormous variations, at least 3 distinct geographical forms. The form in southern Queensland and northern N.S.W. has more slender, longer pseudobulbs than the "southern forms". The "northern form" generally speaking, flowers much more freely in cultivation that the "southern forms" as they produce their racemes more readily and these as a rule, have more flowers than their southern counterparts though the individual flowers are frequently smaller. This form produces aerial growths very freely. Outstanding amongst the many beautiful clones of this form is a very dark flowered plant collected by M.J. Corrigan on a property near the Tweed River N.S.W.

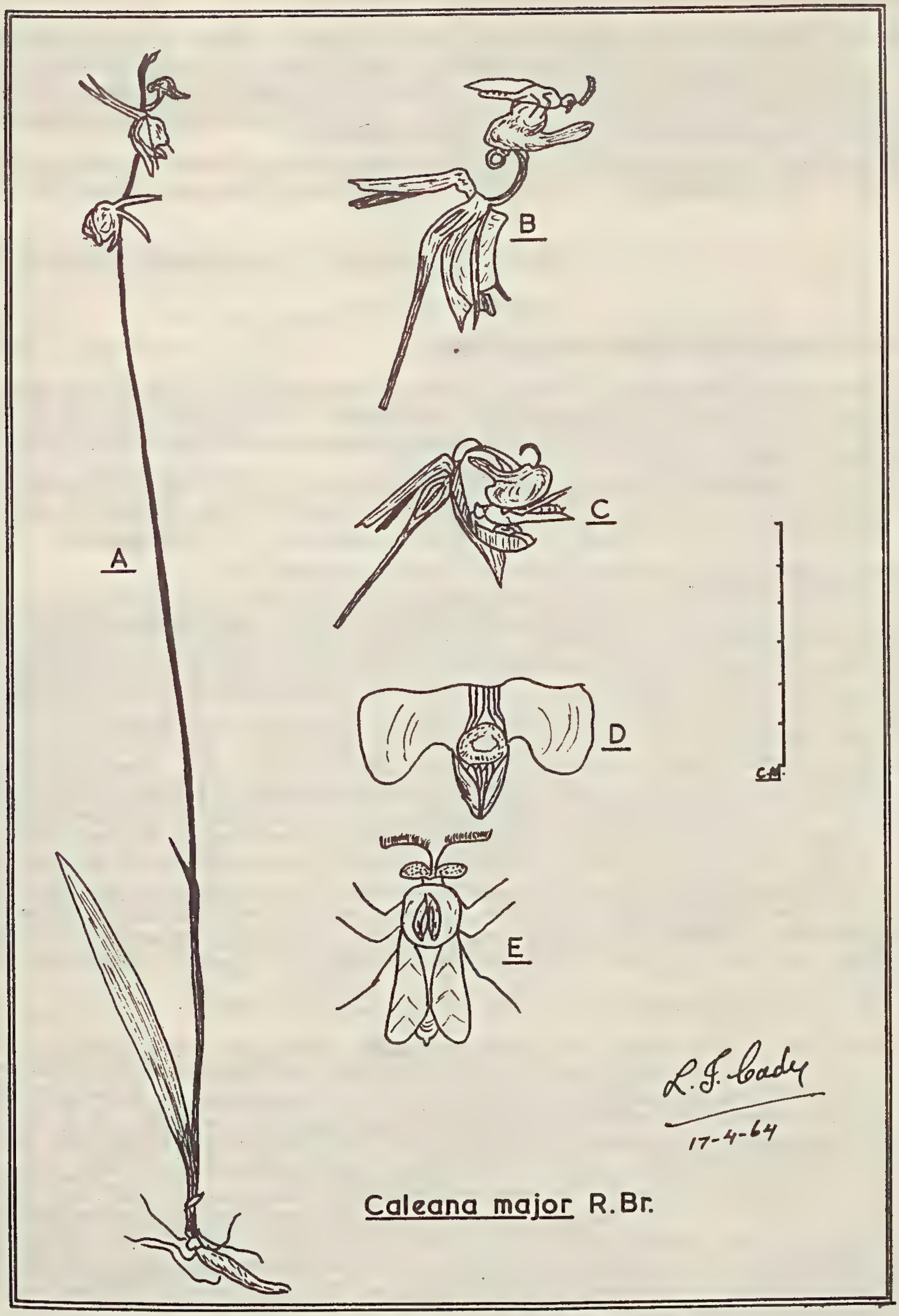
In N.S.W., near Port Macquarie, Taree and Gloucester, D. kingianum is no less variable in floral form but the plants have shorter and stouter stems. They produce aerial growths less freely than the "northern form" but do not flower as freely, (generally speaking) in cultivation. The individual flowers are slightly larger than most of the "northern forms".

There are plants intermediate between this form and the preceding one.

It is near Bulahdelah N.S.W. that D. kingianum is seen for the last time in any real abundance (moving from north to south). Here the form is dramatically different to the other 2 forms. Its pseudobulbs are only 1 - 2 inches high. It normally produces only 1 - 3 flowers on its short racemes and these, though variable are much less so than the other forms and commonly are almost a uniform pink shade and are inconspicuously marked. This form only occasionally produces aerial growths and is less free flowering than the other forms.

Plants of the "Bulahdelah form" have been found south of the Hunter River, though in very small quantities. One small specimen was collected by Mr. N. Willis near Ourimbah, while another was found by Mr. & Mrs. H. Hirsch in the Burragorang Valley prior to its flooding by the Warragamba Dam.

continued page 36.



L. J. Cady
17-4-64

Caleana major R.Br.

KEY TO PLATE

A. Plant natural size to scale.
B. Fly as it lights on the labellum.
C. Fly in position of pollination.
D. Upper section of column showing relative position of stigma and anther.
E. Saw Fly with pollinia attached to thorax.
B. C. D. E. variously enlarged - not to scale.

Dendrobium kingianum Bidw. From North to South. continued

The reason for the vegetative differences is not easily explained. While growing conditions will change the form of the plants, they will not under any circumstances cause one form to change to another. The vegetative differences are heredity as forms of D. delicatum Bail. (a natual hybrid between D. kingianum and D. speciosum Sm.) show. In south Queensland D. delicatum is tall and slender while at Bulahdelah in N.S.W. it is short and stout.
Plants of D. Bardo Rose (D. kingianum X D. falcorostrum Fitzg.) made recently using the "Bulahdelah form" of D. kingianum are much shorter than those produced using taller forms of that species.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

A LOST ORCHID - Dendrobium palmerstoniae Schltr.

S.C. Clemesha.

Little, if any attention has been given to this orchid since its discovery. Rupp and Hunt in " A Review of the Genus Dendrobium (Orchidaceae) in Australia", Proc. Linn. Soc. N.S.W. Vol. lxxii Parts 5-6 (Issued 15th. Jan. 1948), merely gave the reference to its original description and stated that it had not been recorded again.
Unfortunately the type specimen of this orchid was destroyed along with Berlin Herbarium in world war 11. The following is a translation of the original description of this orchid for which I am indebted to the staff of the National Herbarium of N.S.W. and Mr. P. Fetherstone.

"93 Dendrobium Palmerstoniae Schltr. In Fedde. Rep. iii (1907) 317.
Epiphytic, slender, many-stemmed; stems slender elongated, cylindrical, 20 - 25 cm. long, 0.4 - 0.5 cm. diameter, becoming longitudinally furrowed, with small sheaths set at regular distances becoming loosely cleft, with 3 leaves at the apex; inflorescence borne at the apex of the stem (always ?) 1-2 flowered; peduncle very short, protected by 2-3 small sheaths; bracts ovate, very small, many times shorter than the ovary; flowers erect or erect-spreading not outstanding for the genus; intermediate (dorsal) sepal ligulate, sub-acute, 1.5 cm. long, glabrous, the lateral sepals curved-ligulate shortly acuminate, glabrous, as long as the intermediate, the base dilated at the anterior margin 0.7 cm. wide, forming a short obtuse mentum with the foot of the column; petals narrowly subfalcate - (sickle-shaped) ligulate, acuminate, a little dilated in the upper half, glabrous, as long as the sepals, with the labellum 3 - lobed from the broadly cuneate base, about 1 cm. long, the lateral lobes short triangular acute, the intermediate subreniform shortly acuminate, much larger, with the linear callus thickened towards the apex and decurrent from the base of the labellum to above the base of the intermediate lobe, labellum between the apices of the lateral lobes 0.7 cm. wide; column short, clinandrium (anther-bed) shortly 3 - loved, the intermediate lobe narrower than the lateral but not as long; ovary as well as the pedicel glabrous, clavate, 1.3 cm. long.
Queensland: On Mt. Bellenden Ker - Christie Palmerston, 1888.

Unfortunately the leaves of this species are still not known. There is only a piece of stem, at the top of which three leaf-scars are clearly visible, as well as 3 flowers. The species probably belongs in the established section Latourea, in which it is characterised by the short inflorescence."
This description agrees very well with that of Dendrobium adae Bail. in Proc. R.S.Q. 1 (1884) in the general proportions of the plant and in the shape and size of the floral segments, while the "linear callus thickened towards the apex" etc. is a most outstanding feature of D. adae. D. adae is confined to north Queensland where it is common in forests from about 2,500 feet above sea level to 4,000 feet or more. As Mt. Bellenden Ker exceeds 5,000 feet in altitude and being forest covered a large portion of the mountain provides suitable growing conditions for D. adae. While D. adae, like D. bairdianum Bail., D. fleckeri Rupp et White and D. agrostophyllum F. Muell. is allied to the Latourea section it is closer to D. ruppianum, D. speciosum, D. gracilicaule, D. kingianum, D. falcorostrum and D. aemulum.
As D. adae was published over 20 years before D. palmerstoniae I am unable to regard D. palmerstoniae as anything more than a synonym for D. adae.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

THE ORCHADIAN

JUNE 1966 PRICE: 30 cents PAGE 37
VOL. 2, No. 3

Published by The Australasian Native Orchid Society

NATIONAL HERBARIU
LIBRARY
ROYAL BOTANIC GARD
STH. YARRA, S.E.1, V
10 OCT 1966

Patron:	Sir John Hall Best	*President:*	W.H. Murdoch
Vice-Presidents:	Eric Gordon J.H. Scott	*Treasurer:*	E. Marygold
		Records Sec.:	R.J. Curtis
Hon. Secretary:	R.G. Napier	*Editor:*	M.J.G. Corrigan
Asst. Hon. Sec.:	A. Reeves	*Asst. Editor:*	S.C. Clemesha

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

ANNUAL GENERAL MEETING - 24TH SEPTEMBER, 1966.

The Annual General Meeting of the Australasian Native Orchid Society will be held in room 204, Y.W.C.A., Liverpool Street, Sydney at 2.30 p.m. All members should endeavour to attend this important function.

ANNUAL ELECTIONS

Financial members are advised that the closing date for nominations will be 31st July 1966. Post your nomination forms to John A. P. Blackmore, 25 Holden Street, Ashfield N.S.W. Date of election will be 20th September 1966 with all voting forms being posted to John Blackmore at the above address.

BACK ISSUES - THE ORCHADIAN

Members will be happy to know that reprints of Vol. 1 numbers 1-5 are now available at 30 cents each. Those requiring back issues should send their request, together with payment to Bob Napier, care of the Societies Postal Box. All later issues of The Orchadian are available at the price stated thereon.

PROPOSED AMENDMENTS TO THE CONSTITUTION

The following request for amendments to the constitution has been received

(1) Clause 4, insert "(j) Immediate Past President (Non Elective)"
(2) Clause 5, insert "(b) The retiring President shall assume the office of Immediate Past President."

CHECK LIST OF AUSTRALIAN & NEW ZEALAND ORCHIDS

As previously mentioned in past issues of The Orchadian, work has been in progress on this project for many months and members will be interested to know that Steve Clemesha has now added to his original list to the tune of some 200 species. This brings our card file to about 800 species and varieties. As soon as Steve has completed entries on this file, all cards will be checked against "Index Kewensis" (The master reference for all Botanical species) and upon completion of the file we can begin the task of publishing this enormous work.

A REVIEW OF THE SUBTRIBE SARCANTHINAE (ORCHIDACEAE) IN AUSTRALIA AND NEW ZEALAND

Alick Dockrill's great piece of work is in final stages of production and I am sure members will find this work well worth waiting for. Typesetting has been completed and final revisions are now in hand and as the plates have already been printed we are not far off publication.

SCHLECHTER'S THREE AUSTRALIAN BULBOPHYLLUM SPECIES.

A.W. Dockrill.

In this paper, Bulbophyllum adenocarpum Schltr, is reduced to a synonym of Bulbophyllum lageniforme F.M. Bail., Bulbophyllum cochleatum Schltr. (not of Lindl. 1862) reduced to a synonym of Bulbophyllum macphersonii Rupp var. spathulatum Dockr. et St. Cloud and Bulbophyllum trilobum Schltr. reduced to a synonym of Bulbophyllum newportii (F.M. Bail.) Rolfe.

The three of Schlechter's species in question have remained mysteries for over half a century as they have not been recorded since they were described in 1910. This has seemed most peculiar, as in recent years, several quite competent collectors have operated on Mt. Bartle Frere and the Bellenden Ker Ranges, the areas from which Schlechter's specimens came. As the holotype specimens of these 3 species were destroyed by bombing raids on Germany during the second world war, we are forced to rely on their written descriptions for their interpretation. When endeavouring to arrive at correct interpretations of Schlechter's species, we must consider that their descriptions were prepared from herbarium material collected at least 19 years previously. Also, the description of the species with which the present author considers them synonymous, were either not published in standard works or were published under unusual circumstances (B. lageniforme F.M. Bail. in an issue of the Queensland Agricultural Journal, B. macphersonii Rupp (type variety) in FitzGerald's "Australian Orchids" under the heading of Osyricera purpurascens (F.M. Bail.) Deane and not listed under Bulbophyllum, and B. newportii (F.M. Bail.) Rolfe originally under the heading of Sarcochilus newportii F.M. Bail. in Vol. 6 of Bailey's "Queensland Flora" not Vol. 5, which contains the treatment of the family Orchidaceae) and could readily have been overlooked by Schlechter.

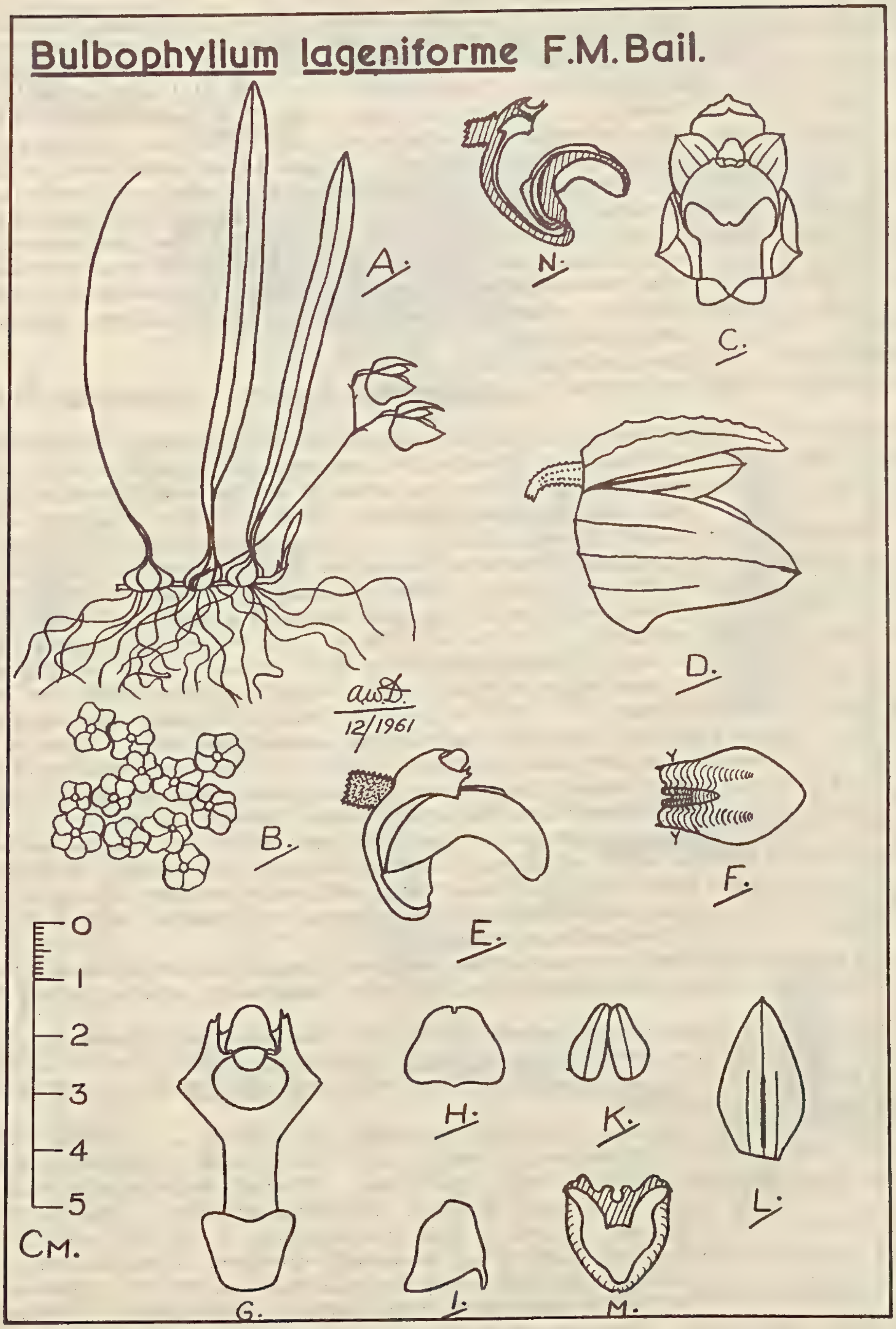
1. Bulbophyllum adenocarpum Schltr. Rupp and T.E. Hunt, Proc. Roy. Soc. Qld. 60, No. 6: 55,57 and 64, gave English translations of Schlechter's three species and these translations will be used in this paper. That of B. adenocarpum Schltr. follows: "Epiphyte in branches of trees, about 5 cm. high; rhizome creeping, with long, filiform, twining, roots. Pseudobulbs rather narrow, conical, with one leaf at the top, 0.5 - 0.7 cm. high, and 3.0 - 3.5 mm. in diam. near the base. Leaf erect, linear, sub-acute, contracted almost in a narrow petiole near the base, 3.5 - 4.5 cm. long, 3.0 - 3.5 mm. broad near the middle. Peduncle filiform from a slender base with a small tightly sheathing bract, 2.0 - 2.5 cm. long, glabrous. Flower almost erect, fairly large, sepals almost oblong, glabrous, medial nerve prominently but not strongly raised, sparsely glandular at the shortly produced apex, 6 mm. long; laterals about as long, similar, but with the anterior margins dilated and very oblique at the base; petals obliquely ovate-lanceolate, obtuse, 5 mm. long; labellum convex, oblong obtuse, base curved inwards, 3 parallel nerves on the upper surface extending almost to the apex, equal in length to the petals, glabrous. Column short, wings large, tips shortly produced into subulate points. Anther cucullate, humped. Ovary pedicellate, clavate, densely covered with warty glands, 6 mm. long including the pedicel.
   Mt. Bartle Frere, N. Queensl., Stephen Johnson, in 1891."

The following is a description of B. lageniforme F.M. Bail. prepared by this author from observations of numerous fresh specimens:

> Plant epiphytic or lithophytic, growing into small clumps. Rhizome averaging slightly less than 1 mm. diam. and usually 1 - 2 internodes between pseudobulbs. Pseudobulbs rather closely spaced, usually ± erect but sometimes oblique, 5 - 10 x 5 - 10 mm., usually depressed ovoid or almost flat but sometimes ± conical, deeply rhizome - embracing, usually rather deeply sulcate leaf ± erect, 4 - 10 x 0.4 - 0.8 cm., linear. Inflorescence 4 - 7 cm. long, usually 2-flowered but varying from 1 - 4; pedicel plus ovary 7 - 10 mm. long, the ovary tuberculate. Flowers ± bell-shaped, averaging about 8 mm. long, usually pale green with brown veins, but sometimes cream or rarely pink, sepals and petals 3-nerved, those of the sepals indistinctly and sparsely tuberculate or rugose. Dorsal sepal 7 - 8.5 x 2.5 - 3 mm., ± oblong-ovate, rather deeply cucullate. Lateral sepals usually slightly longer than the dorsal sepal and 5 - 6 mm. broad at the mentum, ± ovate. Petals 5 - 6 x about 2 mm., oblong-ovate, apiculate. Labellum about 6 x 3.5 mm., curved through about 180°, oblong-ovate when viewed from above; sides erect near the very base only, the remainder decurved through about 90°; disc with 2 keels which converge and unite about the middle (this could readily be interpreted, especially in a dried specimen, as a single grooved keel) and there are also 2 less prominent, sometimes quite obscure, keels, one on either side of the others, which extend much nearer to the apex. Column about 2.5 - 3 mm. long with a foot about 4 - 5 mm. long; lateral wings broad-deltoid but emarginate; apical teeth shortly bifid, extending not quite as high as the anther. Flowering period 11 - 1.
>
> Distribution:- North-east Queensland from the Johnston River to the Big Tableland, seldom at altitudes below 2,500 feet.

A comparison of the two descriptions will immediately show that they both refer to the one species and that consequently B. adenocarpum Schltr. should be known as a synonym of

continued Page 40.



BULBOPHYLLUM LAGENIFORME F.M Bail.
Key to Plate.

A. Portion of plant................to indicated scale
B. Small cluster of pseudobulbs.to indicated scale.
C. Flower from the front............to scale x 5
D. Flower from the side.............to scale x 5
E. Labellum & column from the side to scale x 5
F. Labellum from above .... to scale x 5
G. Column from the front...................to scale x 10
H. Anther from above........................ to scale x 20
I. Anther from the side.................... to scale x 20
K. Pollinia from the front................. to scale x 20
L. Petal....................................... to scale x 5
M. Cross section of labellum at Y-Y... to scale x 10
N. Longitudinal section of
column & labellum................ to scale x 4

Schlechter's Three Australian Bulbophyllum Species. cont'd.

B. Lageniforme F.M. Bail.

2. Bulbophyllum cochleatum Schltr. (non Lindl. 1862). Rupp and T.E. Hunt give the following translation: "A very small epiphyte creeping on the branches of trees; stems short, pseudobulbs close together; pseudo-bulbs ellipsoid, about 1.2 cm. highly (surely this is a typographical error and should be 1.2 mm. high ? -- A.W.D.) with a single leaf. Leaf erect, linear-acute, fleshy, 1.3 - 3.0 cm. long, 1.5 - 2.0 mm. broad. Peduncle very narrow and hairlike, glabrous with a minute bract, one-flowered. Flowers inverted like those of B. polyblepharon Schltr. but smaller. Dorsal sepal lanceolate, acute, glabrous 6.5 mm. long; laterals as long, connate to the sixth apical part in a lanceolate, acutely bifid, glabrous, lamina; petals lanceolate very acute, glabrous, margins here and there inconspicuously dentate, very little shorter than the sepals; labellum narrow at the base with 2 short, broad, lateral wings and then dilating in the lamina to an obtuse, elliptical, concave, spoon-shape; the lamina densely beset with long, clavate hairs, equal to the petals. Column short, wings subulate, exceeding the anther; anther cucullate, glabrous; ovary cylindrical, 1.5 mm. long, glabrous.
Bellenden Ker R., Stephen Johnson, 1891."

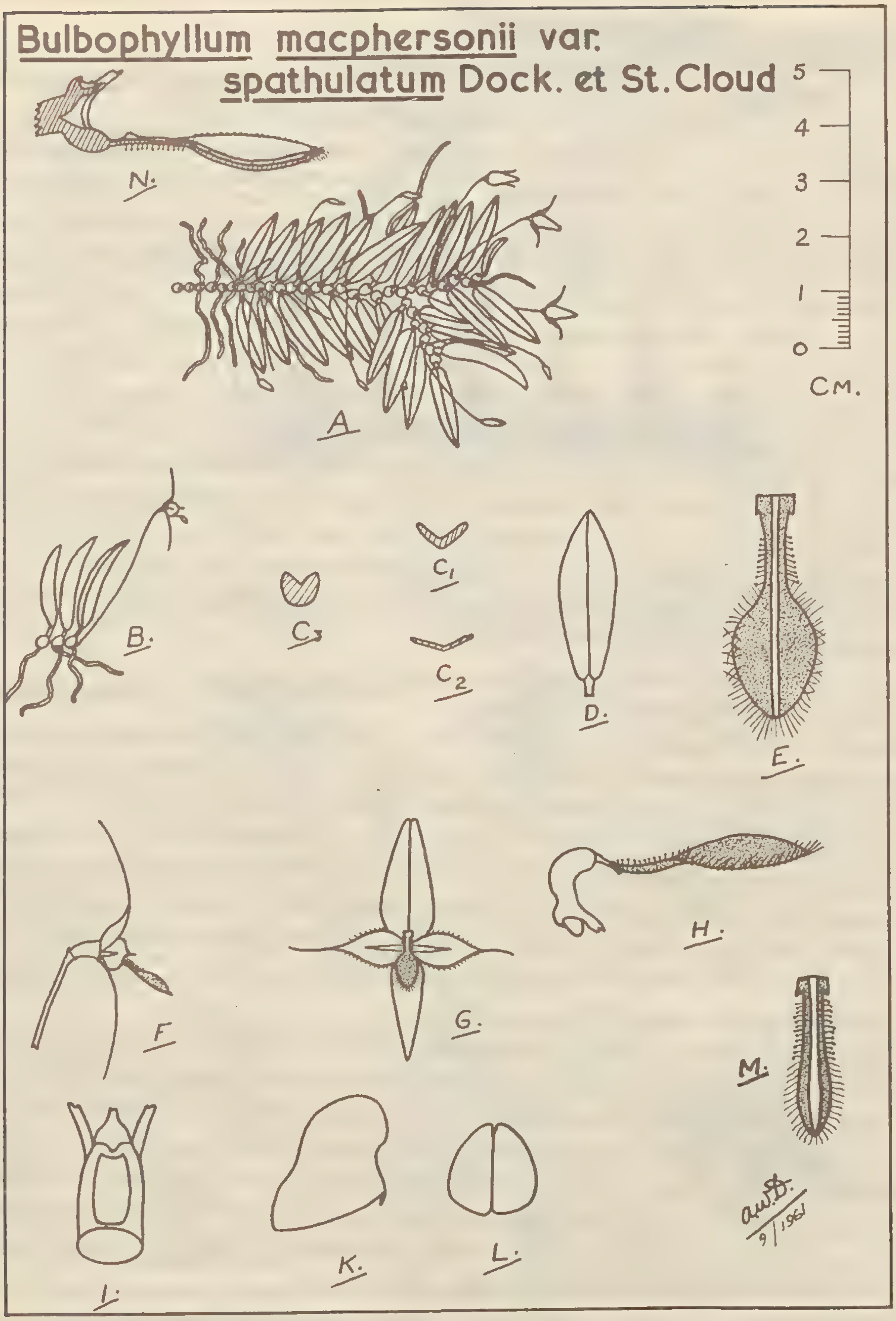
The present author's observations of B. macphersonii Rupp var. spathulatum Dockr. et St. Cloud are:

Plant epiphytic or lithophytic, growing into densely matted clumps. Pseudobubls 1.0 - 1.5 mm. long, ellipsiod or almost globular but somewhat flattened on top. Leaves erect or decumbent, more frequently the latter and usually alternate on either side of the rhizome, variable in shape and thickness, linear, oblong, ovate or obovate, thick to very thick, channelled above and ± rounded below. Inflorescence erect, 2 - 5 cm. long, one-flowered, peduncle and pedicel filiform and variable in proportionate length. Flower with the labellum on top, 15 - 25 mm. diam., widely spreading, deep red or purple, the sepals with 3 - 7 darker veins, the petals with only one; mentum extremely small, practically non-existent. Dorsal sepal 6 - 10 x 2.2 - 3.0 mm., narrow-ovate, acute. Lateral sepals about 6 - 10 mm. long, connate almost to their apices, their combined width being 3.7 - 5.2 mm. and combined shape narrow-ovate, emarginate or bifid, the free apices usually acute. Petals about 6.7 - 10.5 x 2.2 - 3.0 mm., ± ovate, the apex varying from acuminate to longer filiform, margins shortly and usually sparsely ciliate or denticulate. Labellum tremulous on a short claw, about 6 - 9 x 7 - 12 mm., narrow in the basal half where there are two small lateral lobes near its very base, and the distal half dilated into an ovate-concave (spoon-shaped) lamina; lateral lobes about 0.15 x 0.3 - 0.45 mm., ± transverse oblong, glabrous; margins of the disc beset with long clavate hairs, margins of the spoon-shaped lamina beset with long hairs which are not clavate. Column about 1.1 mm. long, apical teeth about 0.7 mm. long, obliquely narrow-oblong and unequally emarginate; foot about the same length as the column, very thick, curved through about 90°. Anther very tall, its rostrum minute.
Flowering period:- almost any time of the year and usually several times a year.
Distribution:- the ranges surrounding the Atherton Tableland, seldom below 2,500ft. altitude.

There is no doubt in the mind of the present author that the two descriptions just given refer to the same plant and that consequently Bulbophyllum cochleatum Schltr. (not of Lindl. 1862) should be reduced to a synonym of B. macphersonii Rupp var. spathulatum Dockr. et St. Cloud.

3. Bulbophyllum trilobum Schltr.
The translation of this species, given by Rupp and T.E. Hunt, l.c., is as follows: "Epiphytic, decumbent on branches of trees, up to 7 cm. high. Rhizomes prostrate with numerous long, flexuose filiform roots, glabrous. Pseudo-bulbs scattered, obliquely ovoid, 1-leaved, 5 - 7 mm. high, 4 - 5 mm. in diam. about the middle. Leaves erect, coriaceous, glabrous, obtuse or apiculate, oblong or oblong-elliptical, 3 - 4 cm. long, 0.7 - 1 cm. wide. Racemes exceeding the leaves, laxly 4 - 6 flowered, slenderly pedunculate; peduncle erect, filiform, usually a little longer than the raceme (rhachis ? A.W.D.), glabrous; bracts minute, ovate-acuminate, much shorter than the pedicel of the ovary. Flowers erect, of medium size, pale rose. Dorsal sepal oblong, obtuse, glabrous, 6 - 7 mm. long; lateral sepals equal and similar to the dorsal but somewhat obliquely dilated towards the base. Petals obtuse, obliquely elliptical, glabrous, about 5 mm. long. Labellum ligulate, curved, 3-lobed, as long as the petals; below the middle hispid-papillose; lateral lobes conspicuous, subfalcate-lanceolate and finely acuminate; mid-lobe nearly 3 times larger, ligulate, obtuse, pink, glabrous. Column short, teeth obliquely lanceolate, exceeding the anther, foot slender, very long. Ovary glabrous, club-shaped, together with the pedicel about 7 mm. long."

continued Page 42.


Bulbophyllum macphersonii var.
spathulatum Dock. et St. Cloud
5
4
3
2
1
0
CM.
N.
A
B.
C1
C3
C2
D.
E.
F
G.
H.
M.
I.
K.
L.
awD.
9/1961

Bulbophyllum macphersonii Rupp var. spathulatum Dock . et St. Cloud

Key to plate

A. Plant	to indicated scale
B. Portion of plant from the side	to indicated scale
C1,C2,C3, variations in leaf cross section	to scale x 2
D - C2 from above	to scale x 2
E. Labellum from above	to scale x 10
F. Flower from the side	to scale x 4
G. Flower from the front	to scale x 4

Key to plate:

H. Column & labellum from the side	to scale x 10
I. Column from the front	to scale x 10
K. Anther from the side	greatly enlarged.
L. Pollinia	greatly enlarged.
M. Labellum of B. macphersonii	to scale x 10
N. Median Longitudinal section of column & labellum of var. spathulatum	to scale x 10

Schlechter's Three Australian Bulbophyllum Species. cont'd.

The present author's description of the extremely variable Bulbophyllum newportii (F. M. Bail.) Rolfe. Based on observations of thousands of plants in the field, follows:

Plants lithophytic or epiphytic, growing into large masses. Rhizomes averaging about 1 mm. diam. and about 2 - 3 internodes between the pseudobulbs. Pseudobulbs usually ± erect or slightly oblique, 7 - 15 x 6 - 12 mm., from depressed ovoid to conical, sulcate but usually not rugose to any great extent. Leaf usually ± erect but sometimes inclined at an angle, 3 - 7 x 0.5 - 1.0 c., narrow-ovate to linear or even narrow-obovate. Inflorescences 4 - 9 cm. long containing 2 - 8 flowers; peduncle usually much longer than the rhachis; pedicel plus ovary averaging about 5 mm. long and not pronouncedly tuberculate. Flowers not very widely spreading, 4 - 6 mm. diam., white, sometimes fading to pale pink or rarely pale pink or pale green when first opened. Dorsal sepal 5 - 7 x 2.5 - 3.0 mm., oblong-ovate or ovate, 3 - nerved. Lateral sepals about the same length as the dorsal sepal but 3 - 4 mm. broad at the mentum, from ± ovate to ± obliquely trinagular, 3 - nerved. Petals slightly more than half as long and about half as broad as the lateral sepals. ± oblong, rounded or apiculate at the apex, 1 - nerved. Labellum about 3 x 1.5 mm., (flattening to about 5 mm. long), ± ligulate, erect in the proximal third then decurved through about 90° ; sides in the proximal third erect and rather high, terminating (i.e. near the centre of the labellum) in slender, usually almost filiform lateral lobes, about 0.5 mm. long, which are curved forward and sometimes embrace the sides, making detection difficult; margins, near the base and in front of the lateral lobes, shortly ciliate; sides in the distal half decurved through about 90° ; disc thick, especially in the proximal half, where it is shortly ciliate in part. Column about 1.5 mm. long with a foot about 3 mm. long; lateral wings dentate; apical teeth much longer, extending higher than the anther but obliquely forwards.

Flowering period; - mainly 9 - 12

Distribution: - north east Queensland, from the Eungella Range to the Big Tableland at least, seldom at alititudes below 2,500 feet.

These two descriptions agree in all but the labellum. Schlechter's description of that of B. trilobum Schltr. is; "....Labellum ligulate, curved, 3 - lobed, as long as the petals (5 mm.); below the middle hispid-pappilose; lateral lobes conspicuous, subfalcate-lanceolate and finely acuminate; mid-lobe nearly 3 times larger, ligulate, obtuse, pink, glabrous...."

That just given for B. newportii (F.M. Bail.) Rolfe: "....Labellum about 3 c 1.5 mm., flattening to about 5 mm. long, ± ligulate, erect in the proximal third then decurved through about 90° ; sides in the proximal third erect and rather high, terminating (i.e. near the centre of the labellum) in slender, usually almost filiform, lateral lobes about 0.5 mm. long, which are curved forwards and sometimes embrace the sides, making detection difficult; margins, near the base and in front of the lateral lobes, shortly ciliate; sides in the distal half decurved through about 90° ; disc thick, especially in the proximal half, where it is shortly ciliate in part...."

At first these two labella give the impression of being considerably different from each other, especially in regard to the lateral lobes. However, if the erect sides of the proximal third of the latter are considered as lateral lobes (which undoubtedly they would be by some authors, especially if observations were based on herbarium material) and the actual lateral lobes considered as the apical portion of these "lobes", then the whole would be ± as that described by Schlechter. The overall lengths are the same (if the labellum is measured around the curve it is about 5 mm. long) and both descriptions give the labellum, near the base, as hispid. Thus what at first might have been considered dissimilar labella are now seen to be quite similar, and as the remainder of the descriptions more or less tally, the present author is firmly convinced that these two plants are conspecific and that B. trilobum Schltr. should be considered a synonym of B. newportii (F.M. Bail.) Rolfe.

A summary of the species and their synonyms follows:

Bulbophyllum lageniforme F. M. Bail., Qld. Agri. Journ. 15: 1 (July 1904); Rupp & T.E. Hunt, Proc. Roy. Soc. Qld. 60, pt. 6: 61 (Dec. 1949)

Synonymy:-B. adenocarpum Schltr. in Fedde Repert 8: 568 (1910); Rupp & T.E. Hunt, ibid p. 55.

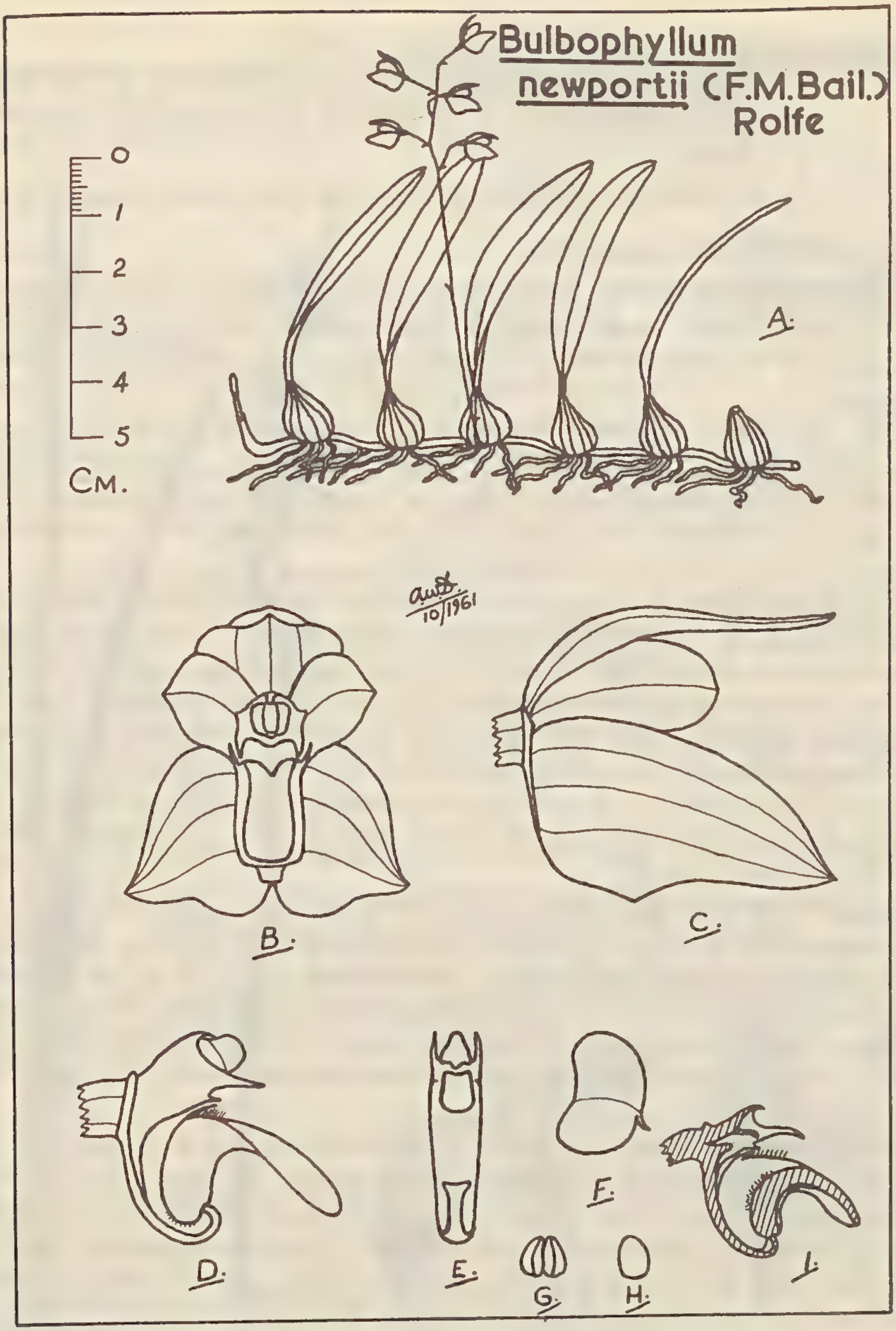
Bulbophyllum macphersonii Rupp var. spathulatum Dockr. et St. Cloud, Nth. Qld. Nat. 26, No. 117: 4 (March 1947)

Synonymy:-B. cochleatum Schltr. ibid p 455; Rupp & T.E. Hunt ibid p 57 -- non Lindl. 1862 (Africa)

Bulbophyllum newportii (F.M. Bail.) Rolfe, Orch. Rev. 17: 94 (1909); Figured by T.E. Hunt Proc. Roy. Soc. Qld. 60, No. 6: pl. 7, Fig. 1 (Dec. 1949).

Synonymy:- Sarcochilus newportii F. M. Bail., Qld. Flor. 6: 2014 (1902)

continued Page 44.



Bulbophyllum newportii (F.M. Bail.) Rolfe

Key to plate:

A. Portion of plant	to scale
B. Flower from the front	to scale x 10
C. Flower from the side	to scale x 10
D. Column & labellum from the side	to scale x 10
E. Column from the front	to scale x 10
F. Anther from the side	to scale x 40
G. Pollinia from the front	to scale x 20
H. Pollinium from the side	to scale x 20
I. Longitudinal section of column & labellum	to scale x 7

Schlechter's Three Australian Bulbophyllum Species. cont'd.

Bulbophyllum trilobum Schltr. ibid p. 455; Rupp & T. E. Hunt ibid p. 64. There are a further 3 synonyms of this species but these will be discussed in a subsequent paper by S. C. Clemesha and the present author.

A. W. Dockrill, 11 Balzer Close. Edge Hill. Cairns. North Queensland.

AN ORCHID IN COURSE OF EVOLUTION ?

J. A. P. Blackmore

Regarded from an evolutionary point of view the genus Thelymitra is one of the most remarkable in the Family Orchidaceae. It is a living example of the theory that the labellum is the development of the third petal - since (with the slight exception of T. venosa) the labella of all species in the genus are indistinguishable from the petals. The heading of this article does not relate to this however, but to the development of the almost unique additional lobe on the column of T. circumsepta.

This interesting "sun orchid" was described by R. D. FitzGerald in the 4th part of his "Australian Orchids" in 1874. The type specimen came from Mt. Tomah on the Bells line section of the Blue Mountains of N. S. W. This is the section of the mountains to the north of, and divided from, the main ridge (which carries the railway line and Great Western Highway) by the deep gorge of the Grose River. By 1943 H. M. R. Rupp recorded it in areas all on, or close to Bells line - Mt. Irvine, Mt. Wilson and Bell.

Although the three mountains mentioned are all basalt capped, T. circumsepta does not form part of the flora of the basaltic soils but is to be found on the Hawkesbury sandstone. The main ridge of the Blue Mountains has been as thoroughly botanised over as almost any area in the State and the absence of T. circumsepta has always been puzzling. However, Lindsay Parker and the writer found it at Mt. Victoria - growing on a disused pass of the western road- a situation where it obviously had grown from seed. In the last year Miss I. Bowden, whose intensive searching on the Blue Mountains had added a number of new species to science and greatly extended the Blue Mountains list, found it at Blackheath. However, prior to this the range had been extended some 50 miles to the south by Leo Cady's discovery of it on the sandstone plateau near Fitzroy Falls. An even greater extension of the range has been to the north - some 250 miles, where Peter Metcalfe surprisingly found it in the New England National Park. Flowering time is the summer; later than any other Thelymitra in this State - December and extending sometimes into January.

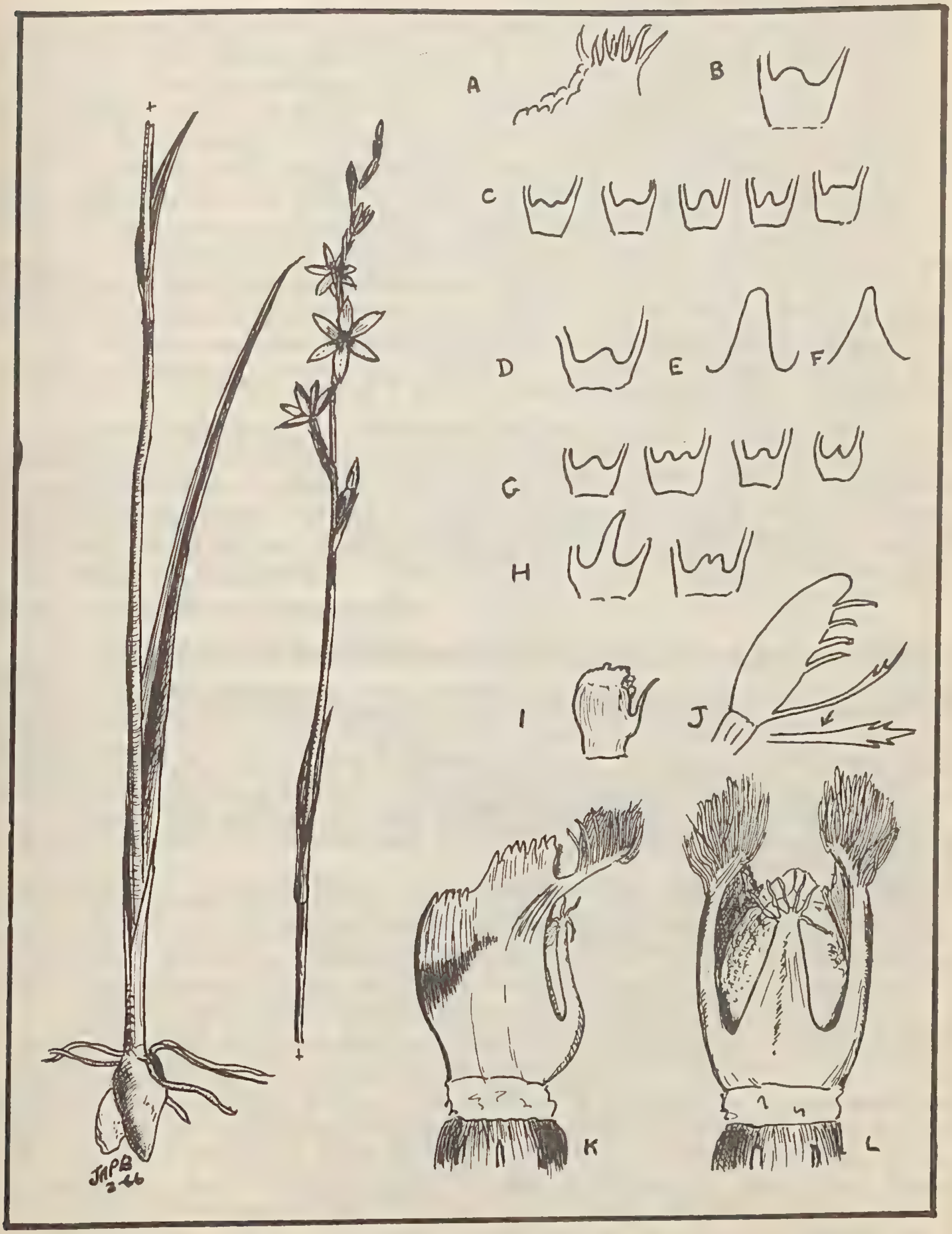
Rupp gives the following description on p. 5 "Orchids of N. S. W." "Plant up to 60 cm. high, robust or slender. Leaf robust, thick and leathery, prominently keeled. Flowers 3-10, rather small relatively to the size of the plant, pale or dark lilac, opening very shyly. Column-wings forming a third penicillate lobe in front, (Underlining by J. A. P. B. Ed.) tapering from a broad base to a filiform point as high as the anther, the hairs on either side of the point and behind it pale, rather sparse, in some cases forked. Lateral wing-lobes fringed in front, then bent slightly inward and extending upward into tufts of yellow hairs. Wings forming a hood above, shortly fringed or toothed, pink above and this merging into blue below. Perianth-segments in all specimens seen very acute. Fl. Summer"

This description needs modification in two particulars:

a. The wings can scarcely be said "to form a hood above" although W. H. Nicholls in "Orchids of Australia" (notes to Plate 2) also strangely referred to "the hood above". As will be seen from the illustration they are well separated and at the back are cut away to below the height of the anther. Indeed the shape of this part of the column is very similar to T. media. This part of the description should read "mid-lobe tripartite, irregularly denticulated with the centre portion lower than the anther". In the outer portions of the mid-lobe in the plant illustrated by Nicholls and copied in the accompanying plate (Detail A) the denticulate margins could almost be said to be penicillate - itself a most individual feature. It will be seen however, that the orchid has a tendency to bear, or not to bear, penicillate extensions in a more important particular.

b. This brings us to the matter of the frontal lobe mentioned earlier and to the second modification necessary to Rupp's description, i. e. his reference to the "third penicillate lobe in front, tapering from a broad base to a filiform point". Since it is usual to describe the column wings of Thelymitra as three, the mid-lobe and two lateral lobes, it is preferable to refer to this lobe as a fourth additional lobe. This structure is very singular indeed. It is borne by no other species in the 50 or so members of the genus, all of which have column wings completely open at the front. Even in the original plate, FitzGerald noted that the tuft of hairs at the apex may be missing, but both he and FitzGerald illustrated the alternate shape as being tall and pointed.

continued Page 46.


A
B
C
D
E
F
G
H
I
J
K
L
JAPB
3-66

An Orchid in Course of Evolution ? cont'd.

However, in my Mt. Victoria specimens and also P. Metcalfe's New England ones, this lobe is found to be at times only a vestigial knob, in others a rounded mound and to assume various intermediate shapes and sizes up to the full pointed and tufted lobe - which incidentally leads to the specific name circumsepta, "with partitions all round". Only the full sized lobe appears to bear the crowning tuft. In four plants examined from Mt. Victoria, 1 and 2 (with 2 and 3 flowers each) all possessed the typical fully developed mid-lobes. Number 3 had 5 flowers each of which possessed a lopsided vestigial lobe as in detail B. Number 4 with 5 flowers had no flower indentical with the others - the lobe varying as in detail C and becoming in the 5th. flower a flap half closing the column opening. The vestigial knob on a New England specimen is shown as detail D - other New England plants possessed fully developed penicillate lobes. Finally the non-penicillated but developed lobes in FitzGerald's and Nicholl's illustrated specimens are shown E and F.

What is the explanation of this unusual frontal lobe with its considerable variation ? Rather than assisting cross pollination it partly bars the entrance at the front of the column. Although T. circumsepta is the only species of the genus which possesses this lobe in typical flowers, a number of other species in which a frontal lobe is usually absent, have been recorded as abnormally possessing various rounded or pointed appendages in the same position.

W.H. Nicholls illustrated three of these, T. rubra, T. flexuosa and T. antennifera (which are copied in details G.H. and I) and suggests in his note to T. rubra that this is a vestige of one of the inner row of stamens.

However, the closest parallel is an abnormal development of T. fuscolutea recorded in Victorian Naturalist by W.L. Williams Vol. 61 p. 119 and Vol. 68 p. 15. In 1933 and the three following years he flowered a plant from the Grampians and found each flower possessed an abnormal strap-like process at the front of the column. In 1950 he removed a plant from the same general area and to his surprise it possessed the same five-toothed appendage (copied in detail J). He poses a number of questions including a final one, "May not a mutation of this kind at some time have resulted in enough plants to constitute a new species (I confess that I cannot think of a probable, or even a possible example)". Is Thelymitra circumsepta the answer to this question ?

John A. P. Blackmore, 25 Holden Street, Ashfield. NSW.

COOL GROWING PSEUDOBULBOUS DENDROBIUMS FROM NORTH QUEENSLAND.

S. C. Clemesha

Amongst north Queensland's numerous species of the genus Dendrobium there are 7 (excluding the fleshy leaved species enumerated at the end of this article) endemic to north Queensland that will grow and flower satisfactorily in bush house or outdoor conditions in Sydney (including the more extreme western suburbs). The term "pseudobulbous"is used merely to distinguish the plants under discussion from the fleshy leaved group and does not mean that the following species have pseudobulbs as does Cymbidium maddidum Lindl. The first five species treated in this article are allied closely to Dendrobium kingianum Bidw., D. gracilicaule F. Muell., D. aemulum R. Br., D. falcorostrum FitzG., D. delicatum Bail., D. gracillimum Rupp, D. suffusum Cady.

D. agrostophyllum F. Muell. produces slender stems up to 40 inches high in its native habitat, though usually less in cultivation. Unlike its allies it does not produce leaves only in the near apical portions of the pseudobulbs as they normally grow almost to its base.

This plant is also unique in its section in that its stems which are spaced on a rhizome, usually take 2 or 3 years to mature. The never numerous, 2 to 3 flowered racemes produce short broad segmented wholly bright yellow flowers to ¾" across and are interesting because of the 4 lobed appearance of the labellum. (This is caused by the "double lobed" mid-lobe).

D. agrostophyllum flowers in September and October and is a common plant in north Queensland where it is almost entirely confined to the highlands at altitudes above 2,500 ft. to about 4,000ft. above sea level, where rain, dew and fog are very frequent. As it grows in the upper branches of trees it is seldom easily collected except in areas where timber cutters have been working. Unfortunately D. agrostophyllum normally takes a few years to recover from the shock of being transplanted, usually because of damage when the trees are felled with resulting deterioration prior to collection. It requires plenty of light and for the writer does best on small pieces of tree fern as tea tree bark and wood are too dry.

Some growers consider this plant to be allied to D. monophyllum F. Muell., but the habit and structure of the flowers differ greatly though the flowers are the same colour.

D. bairdianum F.M. Bail. is a much shorter plant than the preceding. Its stems seldom exceed 5" in height and have 3 or 4 or more, rather narrow leaves in the upper half. Up to

continued Page 47.

Cool Growing Pseudobulbous Dendrobiums from North Queensland. cont'd.

5 flowers are commonly produced from September to January often 2 or 3 times in succession and these are to an inch across. The sepals and petals are short, broad and light green. The deep maroon markings on the labellum are very prominent. D. bairdianum is usually very scattered in its native habitat and rarely if ever is found in abundance. It is found in open forests in the north Queensland highlands between 2,000 and 3,000 feet above sea level.

D. bairdianum appears to be confined to open forests within a few miles of the dense forest of higher altitudes. Though these open forests are hot and dry during the day, frequent fogs and dew bring moisture at night. As grass fires are frequent in many parts of north Queensland the orchid under discussion grows on trees fifteen feet or more above ground level and is rarely seen growing on rocks. Its favourite hosts are a group of Eucalyptus trees known as the "bloodwoods" and the forest oak (Casuarina torulosa). D. bairdianum is not a vigorous species, one rarely if ever seeing plants with more than one new growth. The writer finds it grows best in well aeriated situations on small pieces of fibre.

D. fleckeri Rupp et White. Two forms of this plant exist, 1 with very slender pseudobulbs about one foot or more in length at the apex of which no more than 2 leaves grow. The other has stems little more than half the height of the preceding and these are considerably more robust than the former and rarely produce more than 4 leaves. This form unlike the preceding, not frequently produce aerial growths. These differences are entirely dependant on growing conditions as one form will readily revert to the other. D. fleckeri flowers from October to January in its native habitat, usually with numerous small flowerings in succession. In Sydney however, in the writers experience the flowering period is confined to October - November with a larger number of flowers out at one time, though not in one large crop unfortunately, as in D. speciosum or D. falcorostrum. The individual flowers are large being almost an inch and a half across with broad segments which are apricot coloured (or rarely brownish). The labellum is outstanding because it is densely beset with hairs near its margins while its greatly raised ridges and darker markings are prominent. D. fleckeri in north Queensland is always found at high altitudes 2,500 to 4,500ft. or more above sea level. In the one area where the writer saw the species, it was confined to an area of dwarf rain forest (few trees exceeding 15 feet in height) at the top of a ridge. Humid updrafts from the coast brought it frequent moisture in the form of fogs. Here it grew with Cadetia taylori (FitzC.) Schltr., Bulbophyllum lageniforme F.M. Bail., B. lilianae Rendle and B. evasum Hunt et Rupp while Calanthe triplicata (Willem.) Ames grew on the forest floor below and where this small forest merged with taller normal rain forest D. adae as well as D. fleckeri could be found. In some areas D. fleckeri is found in sunny situations while in others it avoids those in preference for heavy shade. In the writers opinion, plants from shaded areas are slower to establish than those from sunny areas there being less die back of old canes in the latter. D. fleckeri is easily grown on tree fern fibre but seldom flowers well unless given plenty of sun though this is not true of it in nature.

D. adae F.M. Bail is similar in habit to D. fleckeri but the stems and leaves are individually larger though in the case of the former, seldom as numerous (a point which can be overcome by backcutting) D adae. flowers in September and produces up to 8 flowers on each raceme, these individually being larger than those of the allied D. gracilicaule. Two colour forms of D. adae exist, the commoner of these being greeny-white to clear white while the other differs from this in being blotched and speckled on the outside with a mixture of brown, pink and green in a way reminiscent of D. gracilicaule. Both forms are the same inside and intermediates between the two do occur. D. adae is remarkable because of its purity of colour (in the white form), its thickened labellum callus, its beautiful perfume which is present only on warm days at which time the flower expands widely, only to half close as the evening comes and remaining so on cool days. This species is abundant in the highland or more particularly mountain rain forest between altitudes of 2,500 feet and 4,500 feet. Here heavy dews, fogs and rain are common. The species resembles D. gracilicaule in habit but is more slender than the average plant of that species and much more slender than the relatively robust north Queensland form (which is a much less common plant than D. adae). Unlike D. gracilicaule the leaves of D. adae are keeled when felt from underneath. This species grows easily and well on tree fern fibre if well watered. It flowers quite freely if grown in a sunny situation.

D. ruppianum Hawkes. (syn. D. fusiforme F.M. Bail.) is perhaps closer to D. speciosum than any other. It has spindle shaped stems a foot or more in length, from which 3 or 4 lanceolate to ovate leaves grow. These are much thinner in texture than those of D. speciosum. The flowers are produced from spring in the case of the typical form to early summer in the case of forma magnificum. The flowers are creamish with blunter segments and poorer texture than those of D. speciosum. D. ruppianum unlike the preceding species descends almost to the coastal lowlands and has been observed by the writer in areas of the coastal ranges no more than 500 feet above sea level. It also occurrs in sunny situations in the rain forests of the

continued Page 48.

Cool Growing Pseudobulbous Dendrobiums From North Queensland. cont'd.

highlands, but is most common in open forests bordering rain forests. Here it is frequently badly damaged by insects etc. and often grows with D. speciosum.

The writer hs one unflowered plant which in his opinion is a natural hybrid between the two.

D. ruppianum is a more epiphytic species than those discussed so far and will grow quite well on wood as well as tree fern fibre, teatree bark and in baskets.

D. carri Rupp et White. In the writer's opinion this species is showier and more beautiful than the allied D. monophyllum F. Muell. and D. schneiderae Bail. It has conical pseudobulbs about an inch high which are never crowded as they are spaced an inch or more apart on a rhizome. The pseudobulbs normally produce 2 or 3 leaves. D. carri normally produces 1 or unlike its allies 2 or 3 racemes from the new pseudobulbs. Older pseudobulbs flower also (a point absent in D. monophyllum and D. schneiderae) but as a single lead plant often makes 2 or 3 new growths in one season it is not clear whether or not pseudobulbs flower twice or more. The flowers are produced on arched racemes and they are larger than those of D. monophyllum. The sepals and petals are white while the fleshy orange labellum bears purple markings. The floral segments are longer and more pointed than those of D. monophyllum. D. carri flowers in spring and is confined to the north Queensland highlands where the tops of trees in rain forests are its normal home, though the writer was surprised to see one badly burnt specimen on a rock in open forest. This plant had grown well until scorched by a grass fire (see details of the habitat of D. bairdianum for a more detailed description of this area). D. carri frequently grows with the allied D. monophyllum but is much less common than the latter. Plants of D. carri can be distinguished from D. monophyllum by their spaced pseudobulbs with 2 or 3 leaves. The writer find D. carri difficult to grow on all media except tree fern fibre, but it grows easily on this host and likes plenty of light.

D. tetragonum var. giganteum Gilbert, is a common north Queensland plant and differs from the typical form as follows; 1. Stems frequently longer and more erect. 2. Flowers larger and sepals and petals spotted and blotched rather than striped. 3. Labellum frequently being covered to a varying degree with areas of short hairs. 4. Flowering period Spring as in the type, but unlike it, irregularly at other times of the year. D. tetragonum var. giganteum is found in rain forests of highland and lowland north Queensland and grows well on teatree bark or tree fern fibre.

If the one recording of D. stuartii FitzG. from the highland area of Herberton is correct, it may one day be added to the list.

The following fleshy leaved Dendrobiums from north Queensland will grow and flower on media like hardwood or teatree in Sydney. D. teretifolium var. fasciculatum Rupp, D. grimesii White et Summerhayes, D. racemosum (Nich.) Clemesha et Dockrill, D. foederatum St. Cloud, D. linguiforme var. nugentii F. M. Bail., while the following prefer teatree or tree fern fibre. D. rigidum R. Br. D. lichenastrum var. prenticei (F. Muell.) Dockrill and D. toressae (F. M. Bail.) Dockrill. All, except the shade loving D. toressae grow best in a sunny situation. As all the species of the fleshy leaved Dendrobiums at present in cultivation in Sydney including the lowland D. rigidum and D. foederatum will grow out of doors, the writer feels that the recently discovered D. baseyanum St. Cloud and D. wassellii Blake which are not yet in cultivation in Sydney will also grow here.

S. C. Clemesha, 3 Consett Street, Concord West. N. S. W.

THE ORCHADIAN

JULY, 1966 PRICE: 30 cents PAGE 49.
VOL. 2, No. 4.

Published by The Australasian Native Orchid Society

NATIONAL HERBAR
LIBRARY
ROYAL BOTANIC GARD
STH. YARRA, S.E.1, V
10 OCT 1966

Patron: Sir John Hall Best
Vice-Presidents: Eric Gordon
J.H. Scott
Hon. Secretary: R.G. Napier
Asst. Hon. Sec.: A. Reeves
President: W.H. Murdoch
Treasurer: E. Marygold
Records Sec.: R.J. Curtis
Editor: M.J.G. Corrigan
Asst. Editor: S.C. Clemesha

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

NEW RECORDINGS FOR BULBOPHYLLUM MINUTISSIMUM F. Muell.

M.J. Corrigan.

Bulbophyllum minutissimum F. Muell., is a comparitively rare species and is not seen in many collections. I know of only five occurences in N.S.W. and all are on Fig trees (Ficus spp.) and one is less than 40 ft. from a main highway.

H.M.R. Rupp in The Orchids of N.S.W. quotes the following - "Ballina, Bauerlen 5. 1893 (no fls.). The species extends at least as far south as Port Jackson, for Fitzgerald records that it was first discovered by Archdeacon King in 1849, at a spot which is now near the centre of the city of Sydney."

R.D. FitzGerald in his monumental work Australian Orchids, refers to a letter received from Archdeacon King and quotes, "The minute orchid to which you refer, I discovered in 1849 at the back of the old mill in the gully then in a state of nature, leading down from Woollarah to Rushcutter's Bay."

Leo Cady in Australian Orchid Review, Vol. 26, No. 3. Sept. 1961, mentions finding the species at Kiama and Milton N.S.W.

On a recent trip to southern Queensland I was delighted to hear of 2 new recordings of this minute species on Tamborine Mountain, Sth. Qld. Although the species has been known to exist growing on sandstone on the mountain, Mrs. Hilda Curtis having found it some 40 years ago, it had not been known to occur elsewhere in the area.

Joe Lightbody a keen orchid grower who resides in the area recently discovered the species in two separate localities growing on two different hosts.

1. Sandstone cliffs, freely growing amongst lichen. Receiving sunlight from morning to mid-afternoon. Pseudobulbs from light green to bright red in colour, depending upon degree of lichen cover.
   Recorded by Mrs. Hilda Curtis about 1926.

2. Growing on a Marrara tree (Geissois lachnocarpa) in fairly large quantities. Pseudobulbs light brown to bright red. Western side of Tamborine Mountain.
   Recorded by J. Lightbody, November 1965.

3. Found growing on Hoop Pine (Araucaria cunninghamii) on north Tamborine Mountain in small quantities. Pseudobulbs light green in colour, mostly found growing on the underside of the branches.
   Recorded by J. Lightbody, 25th April, 1966.

M.J.G. Corrigan, 13 Empire Street, Haberfield. N.S.W.

ON THE STRUCTURE OF THE ORCHID FLOWER.

Edwin D. Hatch.

The orchid flower is peculiar because it is adapted for cross-pollination by specific insects. There are as many flower variations as there are insect types to pollinate them. Wasps, butterflies, bees, ants, moths, spiders and chewing beetles are all catered for. The attraction is centred in the middle petal (labellum), and may be perfume, colour or nectar, or perhaps edible calli. Sometimes the labellum assumes the form of the insect concerned and near-mechanical devices, traps and pitfalls are not uncommon. The pollinating mechanism of our native orchids has been largely evolved outside New Zealand and the local insect fauna is not sufficiently diverse to do it justice. Consequently there is a strong secondary tendency towards self-fertilisation or even cleistogamy (self-fertilisation within the un-opened flower).

The flower of the orchid is basically liliaceous, but the relationship is often hard to trace. The ovary is inferior, i.e. below the flower; is ribbed and opens by longitudinal slits. This is a useful point of identification. We may imagine the hypothetical orchid ancestor as having 3 petals, 6 stamens in 2 whorls, and a single style with a 3-fid stigma. The fusion of 4 of the stamens with the already confluent styles would seem to have developed in different ways to produce different groups of orchids, but in all of them it would appear to have preceded the specialised perianth. With the organs of reproduction in confluence; normal pollination became impossible, and the next logical step in the flowers development was the modification of the abaxial segment (in this case the middle sepal) to form a landing stage for insects. But the middle sepal, being an outer covering segment, could not lend itself to the delicate modifications which eventually took place, so the ovary became twisted through 180 degrees to bring the middle petal (labellum) into the abaxial position, where it could be more easily adapted to the formation of nectaries and calli and the finer shades of colour and form. At the same time the middle sepal came round into the dorsal position where by reason of its heavier texture and protective nature, it could serve as an awning over the anther. The modification of the labellum was completed by its fusion with the 2 remaining free stamens. Most orchids begin with the flower in its original position and the ovary twists during development. In Prasophyllum (and I notice in Gastrodia sesamoides too!) the flower is inverted with the labellum uppermost - actually the right way up! Here is a point worth studying. Has the ovary in these species not twisted at all ? Or has it twisted through the whole 360 degrees and so come back to its starting point?

All the New Zealand orchids belong to the subfamily Orchidoideae, which has but one fertile anther and 2 fertile stigmas. The structure of such a flower may be summarised as follows -

Theoretically there are 15 segments in 5 whorls of 3. In each whorl, 2 of the segments are paired and the third usually different in form or function or both.

WHORL (1) - 3 styles, each capped by its stigma, confluent to form a single structure (column) in the centre of the flower. 2 of the stigmas are paired and combine to form the stigmatic plate on the front of the column. The third stigma, or a portion of it, appears to be modified to form the rostellum at the top of the column. (The exact nature of the rostellum is causing much discussion at present and the question is far from settled. The above conclusion however, seems to be correct for the majority of the local species. This is another problem which would repay study).

WHORL (2) - 3 stamens, 2 of them paired and confluent with the sides of the column to form the column-wings (very prominent in Thelymitra, where they supersede the insect attractive function of the labellum), the third stamen confluent with the front of the column (except in Petalochilus calyciformis where it appears as a basal appendage).

WHORL (3) - 3 stamens, 2 of them paired and confluent with the labellum to form the various labellar calli, the third (the only fertile stamen in the subfamily Orchidoideae) usually confluent (but not in Thelymitra) with the back of the column and carrying the 2 celled anther, which overtops and usually rests on the rostellum. (In Pterostylis the 2 paired stamens of this whorl do not enter the labellum proper but appear as the ciliate processes of the labellar appendage:

continued Page 51.

On the Structure of the Orchid Flower. cont'd.

In Thelymitra - but only in the subgenus Thelymitra - they are included in the front edges of the column-wings and finally extruded as the cilia of the secondary lobes).

WHORL (4) - 3 petals, 2 of them paired, the third (labellum) rarely similar (Thelymitra, Petalochilus) usually much modified to form an attractive landing-stage for insects.

WHORL (5) - 3 sepals, 2 of them paired, the third (dorsal) sometimes similar, usually much enlarged, its main purpose being to canopy the anther.

Most orchid genera are subject to reversion and odd ancestral features, free stamens, petaloid labella etc. may be found from time to time. Such are as a rule infertile and their peculiarities die with them. Once in a while however, these mutations do not interfere with the reproductive processes and we get forms like Petalochilus, which become quite abundant until man interferes with the habitat. Ordinary malformations are also common. Repressed or enlarged organs, twin labella, petals etc., double or multiple flowers. These are often due to insect or fungus diseases, or to purely mechanical causes.

Edwin D. Hatch, 583 Tane Road, Laingholm Central, Auckland, S.W.4. New Zealand.

FEAR TO TREAD.

Bill Murdoch.

A caption is at least a start. It may be somewhat obscure, but it obviates that mental turmoil when the screed is finished and you realise the futility of finding an appropriate title. I had been listening to a discussion between Murray, our Editor and our senior Vice President, Eric Gordon. "Members all over Australasia and beyond, but not enough material coming forward to permit a more frequent issue of The Orchadian."

As I had just returned from a five days sojourn in a Foresters camp in one of our State forests. I had suggested an attempt to write a descriptive article. "Orchids....about 30 species identified. Black snakes, Bower Birds."....that was as far as I got. Eric, usually very placid, but withal, a tyrant. I began to edge towards the door. "The Orchadian isn't for just anything, Black Snakes, Bower Birds, what next?" Murray, possibly desperate for copy, tried pacification. "Now Bill, Black Snakes are not orchid news, of course if you saw a Black Snake eating an orchid, that would be another matter." A ray of hope here. I recall my father, a sailor of windjammer days often saying, "well if we can't tack, we can always wear." Should I explain this? Briefly then. If a sailing ship is unable, for any reason to move across the wind, i.e. "to tack", then she can go the other way about, "to wear." So....

Audacity, and with a friend at court, I had obtained permission to accompany a Forestry group to their place of work. I drove my car and they travelled in a Land Rover. The "rugged pioneer" legend is for popular fiction. We lived in a well appointed building, at least from my point of view. I have slept on ground in various climes, from 120° F to 10° F below zero, so to find a large fireplace, frige, showers, cubicles, tables etc., was very satisfactory. I had even borrowed an air mattress. A small grandson had put me right, "If you knock these out (the air plugs) in the morning you will be flat". I need not bave apologised for my gesture to comfort, as Eddie, the foreman had one also. I had a lot in common with Eddie, in this case "two musketeers". The group, three in number, were excellent company. Barney knew his native orchids and Eddie, after a few nights tuition could identify twenty of them. I generally left my car at the camp and accompanied them to their place of work. As they went about their job of surveying the timber roads, I wandered round and about, arriving back in time to act as billy boy.

Your first job, orchid hunter, is to cut yourself a good "snake stick". Say, about as thick as your thumb, pliable, tough, and about five feet long. Both Tiger snakes (Notechis scutatus) and Black Snakes (Pseudechis porphyriacus) were in the area, although I didn't see the former, I found three black ones. One got away, so my results were really only fair. As a warning to my orchid collecting friends. Don't be misled by the story that Black Snakes will not attack Some years ago I had one come at me and he really meant it. Having a stick gave me the verdict. I had left the track, actually a fire break and was working my way along a lightly wooded creek bank. My first find was Caladenia, but strangely enough, only one. But not so strange for an area of possibly one hundred yards in diameter, the surface had an unusually tidy appearance. The reason was soon apparent. In the centre was a Brush Turkey's nest (Alectura lathami) and the Turkey cock, who I am told, does the work, had scraped the surface debris into a mound about 12 feet in diameter and about 4 feet high. A funnel is left in the centre, in which the eggs are laid and then sealed up - or unsealed, as necessary, prompted by the birds uncanny instinct as to the requirements of the incubation. In fact, the nest was sealed on my forward journey and unsealed on my return. We can accept the few terrestrial orchids that may have been scratched about as of little consequence.

The creek eventually cascaded into a gully. The descent was possible in places, but it takes very little of the cliff face climbing to satisfy me. Anyhow, I did not need to do too much,

Continued Page 61

SCHLECHTER'S AUSTRALIAN SPECIES OF DENDROBIUM.

A.W. Dockrill.

In this paper Dendrobium muellerianum Schltr. is reduced to a synonym of Dendrobium agrostophyllum F. Muell.

Schlechter was responsible for describing two Australian species of Dendrobium, both from herbarium material collected on the Bellenden Ker Range late in the nineteenth century. One of these, D. palmerstoniae Schltr. was reduced to a synonym of D. adae F.M. Bail. by S.C. Clemesha in the Orchadian 2, No. 2: 36 (Dec. 1966), the second, and the one which will receive attention in this paper, Dendrobium muellerianum Schltr., has not been recorded since it was described in 1907. which has seemed strange as several competent collectors have operated on Mt. Bartle Frere. and a species of Dendrobium with stems 40 cm high would be unlikely to be overlooked. As the holotype specimen was destroyed by bombing raids on Germany during the second World War, the only way in which the true identity of the species can be ascertained is by a careful study of the original description, a translation of which follows:

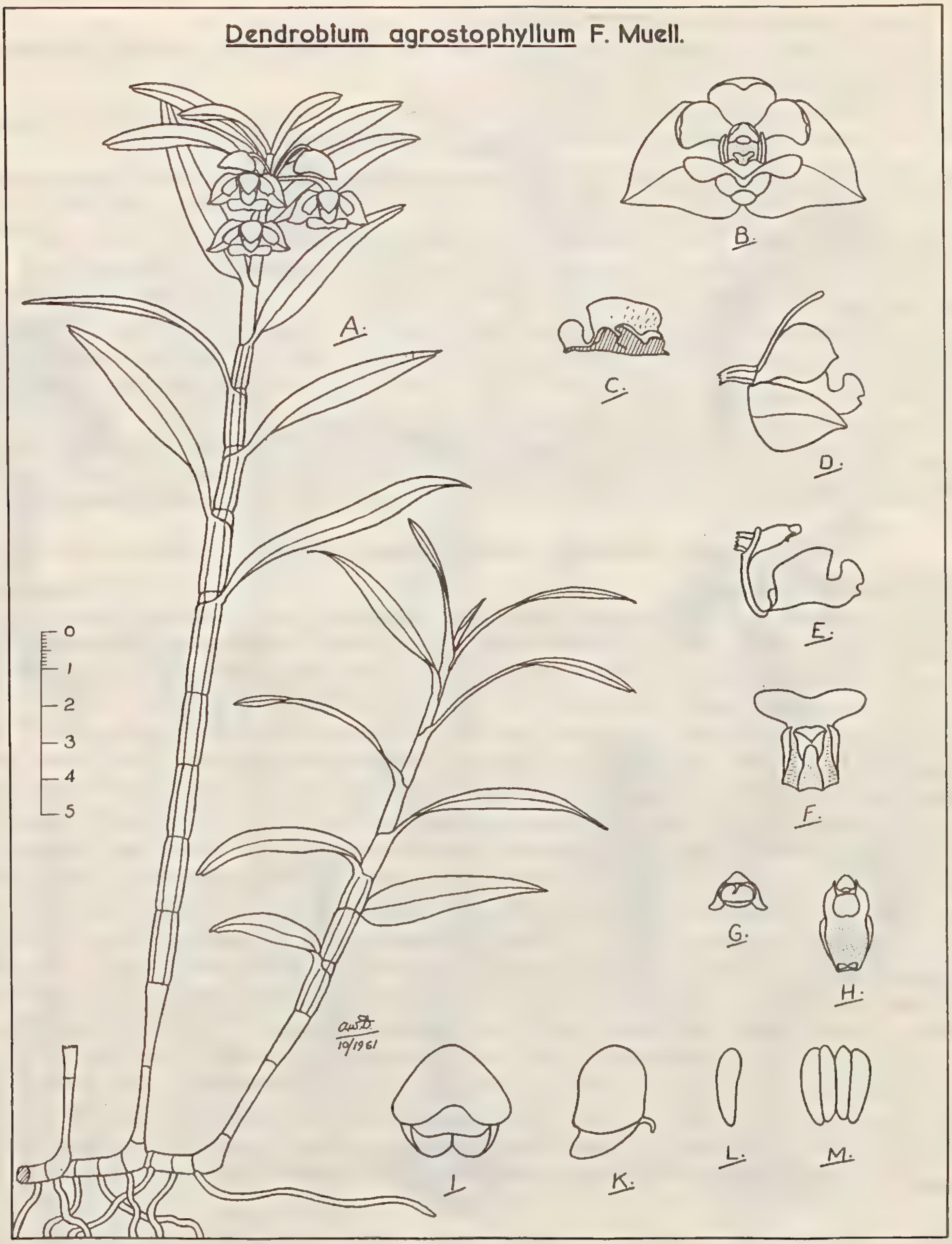
Dendrobium muellerianum Schltr. in Fedde, Repert 3: 316 (1907)
An erect slender epiphyte about 40 cm. high. Rhizomes decumbent, terete, glabrous, with the stems arising along their length. Roots filiform, elongated, flexuose, glabrous. Stems slender, glabrous, cylindrical, 4 - 5 mm. diam., protected by loose leafy bracts. Leaves spreading or erect, lanceolate-ligulate, acute and unequally 2-lobed, glabrous, coriaceous, 3 - 5 cm. long by 5 - 9 mm. broad below the middle. Racemes arising laterally, short, 2 - 5 flowered, about as long or slightly longer than the leaves. Floral bracts oblong, obtuse, much shorter than the pedicellate ovary. Flowers of medium size for the genus. Dorsal sepal ovate-oblong, obtuse, 1 cm. long, glabrous. Lateral sepals equal in length to the dorsal sepal, obtuse, glabrous, oblique, dilated at the base to 8 mm. broad. Petals oblique, oblong, obtuse, slightly decurved and shorter than the sepals. Labellum orbicular to almost square, (this would probably apply to the flattened out herbarium specimen ----A.W.D.), trilobate, glabrous, about 8 mm. long; lateral lobes oblong-obtuse; mid-lobe transverse, minutely apiculate, 0.4 cm. long by 1 cm. broad; labellum 1 cm. wide between the apices of the lateral lobes; callus two-keeled, oblong, decurrent to the middle, apex of callus abscurely two-stemmed, and callus decurrent to the base of the mid-lobe. Column short, the foot elongate, clinandrium shortly tridentate. Ovary pedicellate, clavate, glabrous, and, including the pedicel, 1.5 cm. long.

Mt. Bartle Frere, S. Johnston, January, 1892.

The only Australian species of Dendrobium with an elongated terete rhizome from which long slender stems arise at intervals along its length is D. agrostophyllum F. Muell. and a description of this species, prepared by the present author, follows:

Dendrobium agrostophyllum F. Muell., Fragm. 8: 28 (1872); Benth., Flor. Austr. 6: 281 (1873); FitzG., Aust. Orch. 2: pt. 3 (1888); F.M. Bail., Qld. Flor. 5: 1529 (1902); Krzl., Pflanz. 45: 158 (1910); T.E. Hunt & Rupp, Proc. Linn. Soc. N.S.W. 72: 238 (1948).
Plants growing in long lines, only very rarely forming anything remotely resembling a mass. Rhizome averaging about 5 mm. diam. with usually 3 - 5 internodes and a length of 1 - 6 cm. between stems. Stems 15 - 60 X 0.5 - 0.8 cm., slightly swollen in the basal internodes, thence very slender-fusiform (almost cylindrical), shallowly sulcate, leafy in about the apical third or half, flowering for several years in succession. Leaves up to about 20, ± spreading, 3 - 10 X 0.6 - 1.2 cm., narrow-ovate-acuminate, emarginate, thin in texture. Racemes only a few cm. long, containing from 2 - 10 flowers, but mostly about 5, on pedicels 1 - 2 cm. long. Flowers ± drooping, 1.5 - 2.5 cm., diam., ± cup-shaped, canary or buttercup yellow; mentum indistinct but about 6 mm. long. Dorsal sepal 7 - 9 x 5 - 6 mm., ± ovate. Lateral sepals about the same length as the dorsal sepal but slightly broader, ovate or broad-triangular. Petals slightly shorter and narrower than the dorsal sepal, oblong-ovate (obovate but constricted in the basal section). Labellum about the same length as the dorsal sepal or slightly longer; lateral lobes about 3 X 5 mm., transverse oblong; mid-lobe broadly separated from the lateral lobes and ± horizontal but channelled, much broader than long, about 3 X 10 mm., ± transverse-oblong but broadly emarginate so that it is almost bilobate, sometimes there is a small tooth in the centre of the notch; keels of the disc extend from its base to its apex but not on to the mid-lobe, 2 in line with each other, high, broad and channelled, the front one shorter and broader than the back one and partly overlapped by it. Column about 3 mm. long with a foot, about 9 mm., long and hooked at the apex, almost at right angles to it. Stigma almost circular but emarginate at the base. Rostellum very small, ± crescentic. Anther very high; rostrum short

Continued Page 54.



DENDROBIUM AGROSTOPHYLLUM F. Muell. —— Key to Plate.

A. Portion of plant . . . . to indicated scale.
B. Flower from the front . . . . to scale X 3.
C. Longitudinal section of labellum. . to scale X 3.
D. Flower from the side . . . . to scale X 3.
E. Column and labellum from the side. to scale X 3.
F. Labellum from above . . . . to scale X 3.
G. Top of column, anther removed,
from above . . . . to scale X 3.
H. Column from the front . . . . to scale X 3.
I. Anther from the front . . . . to scale X 20.
K. Anther from the side . . . . to scale X 20.
L. Pollinium from the side . . . . to scale X 20.
M. Pollinia from the front . . . . to scale X 20.

Schlechter's Australian Species of Dendrobium cont'd.

and, broad and broadly emarginate, horizontal near its base then decurved through about a 90° angle. Pollinia comparitively long and slender.
Flowering period:- mainly 8 - 10 but sometimes erratic.
Distribution:- north-east Queensland, from the Burdekin River to the Annan River at least, preferring the ranges and highlands but occasionally extending into lowland gorges.

Referring back to the important features of D. muellerianum Schltr. we find: rhizome elongated with stems scattered along its length; stems about 40 X 0.4 - 0.5 cm., cylindrical; leaves 3 - 5 X 0.5 - 0.9 cm., ± lanceolate (ovate-acuminate); racemes lateral, short, 2 - 5 flowered; labellum about 8 mm. long, lateral lobes oblong (many authors erroneously refer to the portion of the lateral lobe nearest the apex of the labellum as the apex of the lobe, when, in fact, the portion of the lobe attached to the body of the labellum forms the base of the lobe, and the margin opposite the base, its apical margin, not the portion on the side of the lobe -- consequently the lobe referred to as oblong by Schlechter was probably transverse-oblong), obtuse, mid-lobe transverse, 4 X 10 mm., disc with 2 keels, the back one decurrent over the front one and the front one decurrent at its distal end where it does not extend on to the mid-lobe; column short with an elongated foot. ---The shape and size of all of the above features are quite reconcilable with their counterparts in D. agrostophyllum F. Muell., and as a consequence it is reasonable to assume, especially if the similarity of the features is considered in conjunction with the history of Schlechter's species, that the two plants are conspecific, which means that D. muellerianum Schltr. should be known as a synonym of D. agrostophyllum. F. Muell.

A.W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

THE GENUS PTEROSTYLIS R. Br.

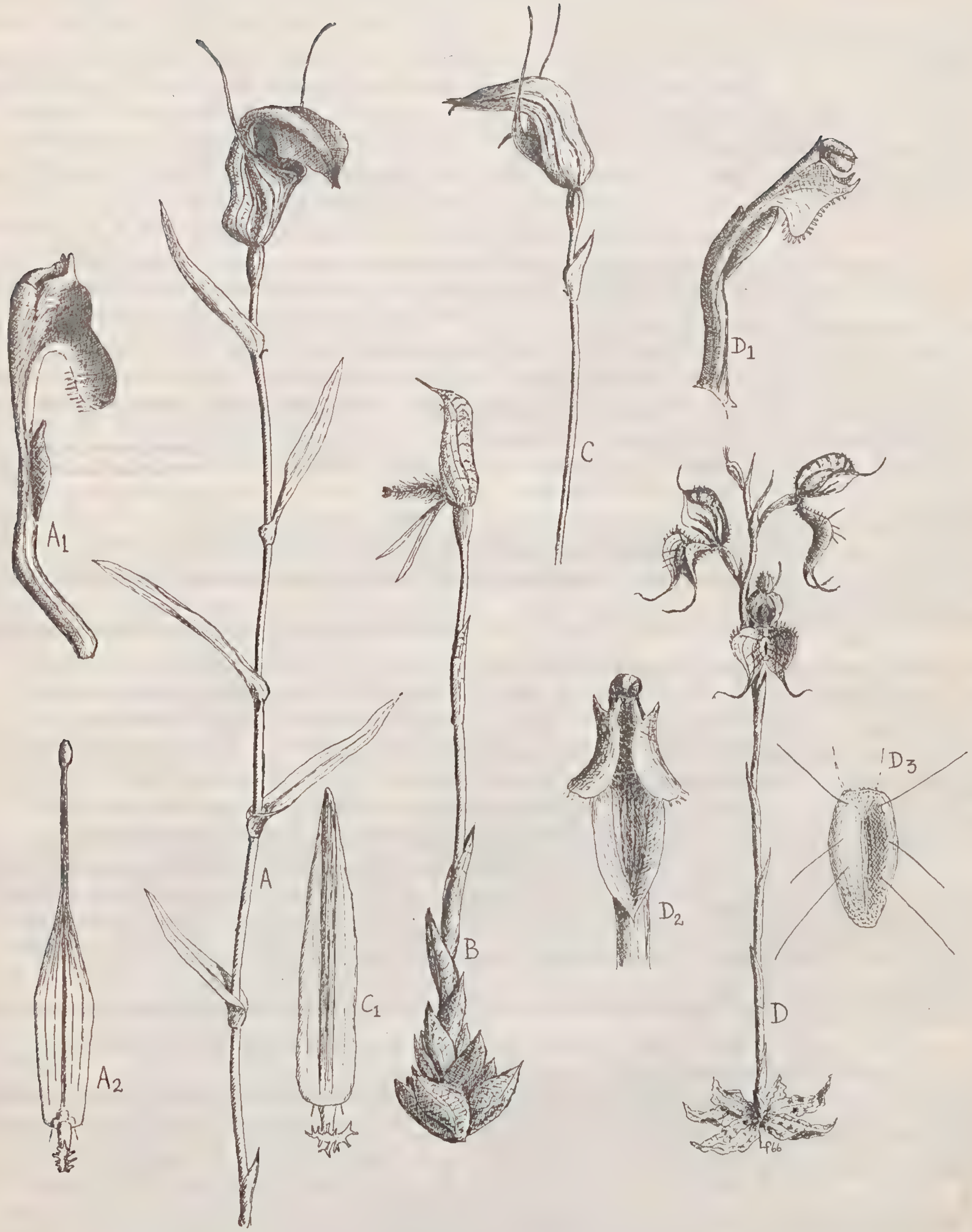
J.A.P. Blackmore.

This genus of terrestrial orchids of more than seventy species is one of the largest in Australia. It was originally described by Robert Brown in his "Prodromus Florae Novae Hollandiae" in 1810, page 235, being named after the peculiar winged column, from the Greek; pteron - a wing & stulos - a style. However, this feature is only apparent on examination of the hidden parts of the flower. The external feature common to all is the hooded shape of the flower, which, with the predominantly green colouring, has given rise to the popular name of "Greenhoods". All members of the genus are terrestrial herbs with small underground tubers. The leaves are frequently broad in a radical rosette. The flowering stem in many species arises from the centre of this rosette but in many others, the rosette is distinct from the flowering stem. In other species (especially those endemic to New Zealand) the leaves are narrow and cauline though occasionally crowded together at the base of the flowering stem. The stem itself is furnished with a number of bracts which in some species may be quite small but in others are large and leaf-like. The flower in all cases is in the shape of a hood or galea in which the dorsal sepal, being very concave and generally considerably incurved, combines with the two petals which are closely appressed to it, to form the hood which conceals the column. The two lateral sepals are always connate in their lower portions and are either held erect, embracing the hood or deflexed against the ovary. The free portions of the lateral sepals often taper into fine points. The labellum is usually fairly small and flat though it may be of a number of varying shapes, oblong, ovate, lanceolate and in one species, filiform. It is attached to the foot of the column by a movable spring-like claw which is generally irritable and frequently has at its base an appendage which may be simple in shape but is most frequently penicillate. The column is elongate inside the hood and on the face of the column in its centre bears the stigma which is often prominent and with the rostellum towards the top of the column which is in turn surmounted by the two-celled anther. The wings, after which the genus is named, are attached at the top of the column on either side of the rostellum and the margins of these wings are generally densely ciliate.

Pollination:

The pollination of the genus Pterostylis is of more than ordinary interest, in which the irritable nature of the labellum, usually springing erect at the slightest touch, forms an important part. This movement of the labellum first appears to have received scientific attention in 1872 when T.F. Cheeseman published his paper on the fertilisation of the New Zealand species of Pterostylis. The pioneer Australian orchidologist R.D. FitzGerald experimented with small insects which he placed on the labellum, but it was not until 1909 that O.H. Sargent witnessed the actual pollination of Pterostylis vittata Lindl. by a small gnat, confirming the experiments and theories of the earlier botanists.

Continued Page 56.



The GENUS PTEROSTYLIS R. Br. — Key to Plate.

A.	PTEROSTYLIS grandiflora R.Br. natural size.
A.1.	" " column from side.
A.2.	" " labellum from above, flattened.
B.	PTEROSTYLIS barbata Lindl., natural size.
C.	PTEROSTYLIS acuminata R. Br., natural size.
C.1.	PTEROSTYLIS acuminata R. Br., natural size.
D.	PTEROSTYLIS boormanii Rupp, natural size.
D.1.	" " column from side.
D.2.	" " top of column from front.
D.3.	" " labellum from above.

Columns and labella variously enlarged.

The Genus Pterostylis R.Br. cont'd.

Mrs. Edith Coleman who advanced the study of the pollination of Australian orchids more than any other botanist, in 1934 witnessed and described the pollination of Pterostylis falcata Rogers, by a mosquito. The small size of both the gnats and mosquitoes as pollinating agents when compared with the size of the flower, is very surprising. Whilst the labellum plays an important part, the whole of the flower may be regarded as a remarkable pollinary mechanism. The hood formed by the dorsal sepal and the petals entirely encloses the column and forms a box-like space which is only open to the front. When relaxed, the labellum falls forward making an efficient landing stage for insects desiring to enter the flower but when it springs closed it almost closes the entrance to the hood. The labellum is extremely sensitive, the slightest touch will often cause it to spring swiftly back against the column and in many species it is furnished with cilia along the edges which further block any possible gap.

Observations tend to show that the flower attracts the insect by offering a drink of a potent liquid which often appears to have an intoxicating effect and which is contained in the fleshy tissue at the base of the labellum spring. Once the labellum springs back against the column the insect is made a prisoner and after fluttering about its only route of escape is by the narrow tunnel along the front of the column past both the stigma and the anther. As it climbs up the column it must pass the viscid rostellum by which it is smeared with a sticky substance and the column wings with their hairy edges ensure that, at this important stage of its journey, it will not deviate to left or right. To escape it must pass the pollinia which lie loosely in the anther cases and it emerges from the top through the only space not closed by the labellum with the pollen masses glued to its back. Attracted to another flower this performance is repeated and the pollen is brushed against the stigma, a cushion-like structure where it adheres and pollination is affected. It is somewhat ironic that in spite of this complex and remarkable mechanism, successful fertilisation is relatively infrequent.

Classification:

Robert Brown divided the species according to the character of the appendage found at the base of the labellum but as the number of described species has increased this method of classification would scarcely be satisfactory today. Bentham in his "Flora Australiensis" divides the genus into two primary sections.

1. Antennaea; in which the lower sepals are erect with their free portions embracing the galea; and
2. Catochilus; where the lower sepals are not erect but are reflexed in front of the ovary.

H.M.R. Rupp in publishing a new scheme of classification in 1933 agreed that this was an important distinction but objected that it included in the section Catochilus two species Pt. barbata Lindl., and Pt. turfosa Endl., which had little in common with their associated species except for the attitude of the lower sepals, and these were not, in any case, reflexed but were spreading or held forward in a horizontal position. Since that time A.S. George has reduced Pt. turfosa to a synonym of Pt. barbata but this is certainly an anomalous species. The labellum is filiform and covered with long yellow hairs almost to the point where it terminates with a dark knoblike appendage. This labellum does not appear to be irritable and cannot from the shape of the galea take up the normal position of the labellum against the column. Rupp therefore suggested two divisions of the species:- Filiformae; which would now include only Pt. barbata and:- Laminatae; which would include all other species. This distinction having been made there is still considerable point to Bentham's division. However, Rupp preferred to divide his section Laminatae into two further divisions for the purposes of classification:

(a) Those species in which the radical leaves are present in a rosette encircling the base of the flowering stem; and

(b) Those species in which the radical rosette is usually separate from the flowering stem, and this is a distinction which works quite well in practice.

There is however, one important and natural basis for the division of the genus and that is into group (a) which are usually single flowered andgroup(b) which are usually multi-flowered. The majority of species bear only a single flower although even these species will, on very rare occasions, sometimes bear two flowers. The multi-flowered species will, except in the case of small specimens, when the odd single flowered plant may be found, bear up to about fifteen flowers in a terminal raceme. With the exception of Pt. parviflora R. Br. all of the multi-flowered species have their lower sepals reflexed and fall into Bentham's section Catochilus. Among the multi-flowered group there is a group of six species which are rather distinct and are generally referred to as the "Rufous Group" because of their generally reddish colouring. This group which includes Pt. rufa R. Br., Pt. mitchellii Lindl., Pt. squamata R. Br.,

Continued Page 57.

The Genus Pterostylis R. Br. cont'd.

Pt. pusilla Rogers and Pt. woollsii FitzG., have flowers which have an interesting grotesqueness of form with the labella and frequently the lower sepals beset with many small hairs and longer setae. Although many of the differences between one species of Pterostylis and another are somewhat subtle, in practice the schemes of classification, particularly that published by H. M. R. Rupp work well and there is little doubt as to the validity of most of the published species. There is however, still some confusion in regard to the classification of some of the species in the "Rufous Group". The species of this group have always appeared difficult to properly define and Bentham's solution was to reduce three of these species (which would today include five recognised species) to the one species Pt. rufa R. Br. This has not however, been acceptable to later botanists. It has been found that members of this group are not as rare as was thought for many years and with the availability of further specimens a satisfactory revision of the group should be possible.

Range and Habits:

The genus is chiefly an Australian one where about sixty species are endemic but it also extends to New Zealand where there are about seventeen species (including seven "Australian" species) and to Papua - New Guinea and New Caledonia.

Although many of the species like well shaded damp situations certain others prefer the hillsides in forests, a few prefer grasslands and some are adapted to growing in arid conditions in areas of very low rain fall, in inland Australia. Along the coastal areas typical situations are in moist shady gullies, along the banks of streams and on moss covered rocks. In these situations, it is not uncommon to find very large colonies of some species e.g. Pt. nutans R. Br. which may form colonies of some hundreds of plants in favoured situations, the rosettes carpeting the ground. Many species grow in close proximity in colonies which expand by vegetative multiplication of the tubers.

With those species which prefer the forests on the sides and top of the mountain ranges, some may also be found growing in tight colonies but others e.g. Pt. revoluta R. Br. are to be found growing singly or in loose colonies spread over a considerable area. Areas of undisturbed natural grassland are not now frequently seen in Australia owing to extensive grazing of sheep which generally wipes out the orchid population. However two small multi-flowered species Pt. mutica R. Br. and Pt. cycnocephala FitzG. are vigorous growers and will often withstand light grazing and colonise suitable areas on golf courses etc.

The members of the "Rufous Group" all have comparatively large tubers and are most frequently to be found growing on dry rocky hillsides in areas west of the Great Dividing Range, where often few other herbaceous plants, apart from a few hardy grasses, are to be found. One species Pt. mitchellii has been recorded west of the Darling River in an area with an average rainfall of only about five inches per year and is the only terrestrial orchid to be found so far inland. The species vary considerably in size from very small species such as Pt. nana R. Br. which may be only 3 c., high to tall specimens of Pt. longifolia R. Br. which attains the height of almost 100 cm. So too the size of the individual flowers ranges from the smallest Pt. parviflora which are only about 1 cm. long to the largest species Pt. falcata Rogers and Pt. baptistii FitzG. which may measure up to 7 cm. around the curve of the galea.

So far as flowering time is concerned, the majority of species fall into one of two groups groups - the spring flowerers or autumn flowerers. However, the autumn flowering frequently extends into winter in the milder areas and arrives early in summer on the colder highlands. One species or another will therefore be found flowering in any month of the year. There may however, owing to drought conditions be a total absence of flowers in some areas and the time of the autumn flowering in any particular area generally depends on whether or not the rains at the end of summer are early or late.

Cultivation:

In view of the subdued colouring and small size of a good number of the species many would no doubt consider that there is little of horticultural interest in this genus, although a fine pot of Pt. baptistii with some twenty or more plants all flowering together is a fine sight. It is odd that many cannot see beauty in these plants Mrs Edith Coleman had this to say in regard to Pt. grandiflora which, by general consent, possesses one of the most striking flowers in the genus with its relatively large cobra-like blooms:

> "It is, I think, the most beautiful member of a genus which includes species unsurpassed for their exquisite lines and graceful curves, while it more than holds its own with any single-flowered terrestrial orchids of other countries, with which I am familiar.
>
> The keynote of Pt. grandiflora R. Br. is simplicity.
>
> A slender, solitary-flowered species (occasional two-flowered specimens have been noted),

Continued Page 58.

The Genus Pterostylis R. Br. cont'd.

> individual beauty is never lost in overlapping lines, or indefinite curves, so often the case where a number of flowers are crowded on one stem. Instead, the eye may follow every curve, each of which is nothing less than perfection. The body of the flower is of a translucent white, with dark green striae. The expanded parts of the paired petals, which, with the dorsal form a hood for the protection of the essential organs, are reddish-brown in colour. The lateral sepals are extended into thread-like points rising above the hood in exquisitely graceful lines.
>
> The delicate veinings on the lower lip are expecially beautiful suggesting the neuration of a moth's wings".

It was for many years considered that the best way of cultivating Australian terrestrials was to dig up the tubers without disturbing the surrounding soil, but it has been found that with Pterostylis at least, the tubers grow best if repotted in a compost of about half light bush sand, 40% peat moss and 10% charcoal and leaf mould. The tubers will in the space of one or two years multiply considerably into a crowded pot and may then be transferred to a large pot or divided into smaller pots. After flowering, the rosette dies off and to prevent the rotting of the tubers, it is generally recommended that the pot be kept somewhat drier during this dormant period.

In the important field of growing these plants from seed, no work appears to have been done in Australia (at least none has been published).

In 1964 Warren P. Stoutamire of Cranbrook Institute of Science, Bloomfield Hills, Michigan U.S.A. reported on progress made by him in the growth of a number of Australian species including Pt. falcata and Pt. nutans. As this worker says "more knowledge of these early growth stages, but under laboratory conditions and in natural habitats, should ultimately help in our attempts to preserve these unusual plants."

Reference has been made to particular species throughout this paper and it would scarcely be possible to even refer to the salient points of the individual species without considerably extending its length. In spite of the fact that most of the flowers have a basically similar shape, and to the uninitiated the differences may appear to be somewhat subtle, the genus is probably the one amongst Australian terrestrial orchids which has the greatest appeal to the growing number of people who are studying and growing these interesting plants.

John A. P. Blackmore, 25 Holden Street, Ashfield. N.S.W.

A NEW SPECIES OF DENDROBIUM FROM NEW GUINEA.

V.A. Chadim.

Dendrobium helenae Ch. is a new species from the section Latourea, a very close relative of Dendrobium magnificum Schltr.

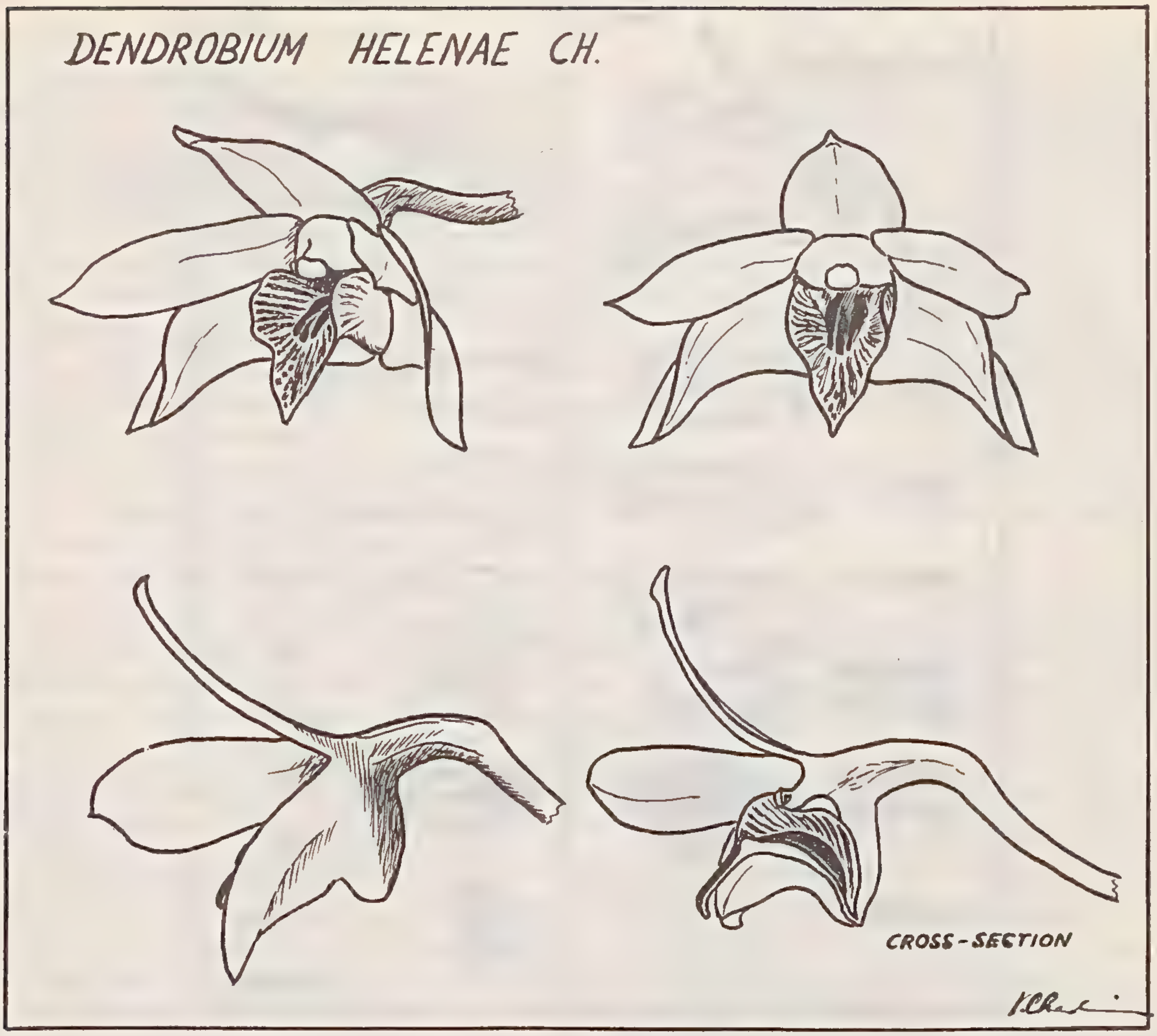
So close, that there appears to be no difference between the vegetative parts of Dendrobium helenae and Schlechter's description of Dendrobium magnificum. The similarity of plants is nothing unusual in the section Latourea, e.g. Dendrobium polysema Schltr., Dendrobium finisterrae Schltr. and at least one variety of Dendrobium forbesii Ridley are quite impossible to distinguish unless they flower. I have drawn the floral parts of D. helenae alongside those of D. magnificum, taken from Schlechter, in the same scale for comparison. Unfortunately live plants of these two species cannot be compared directly, because as far as I know nobody has seen D. magnificum in the 58 years since Schlechter's discovery.

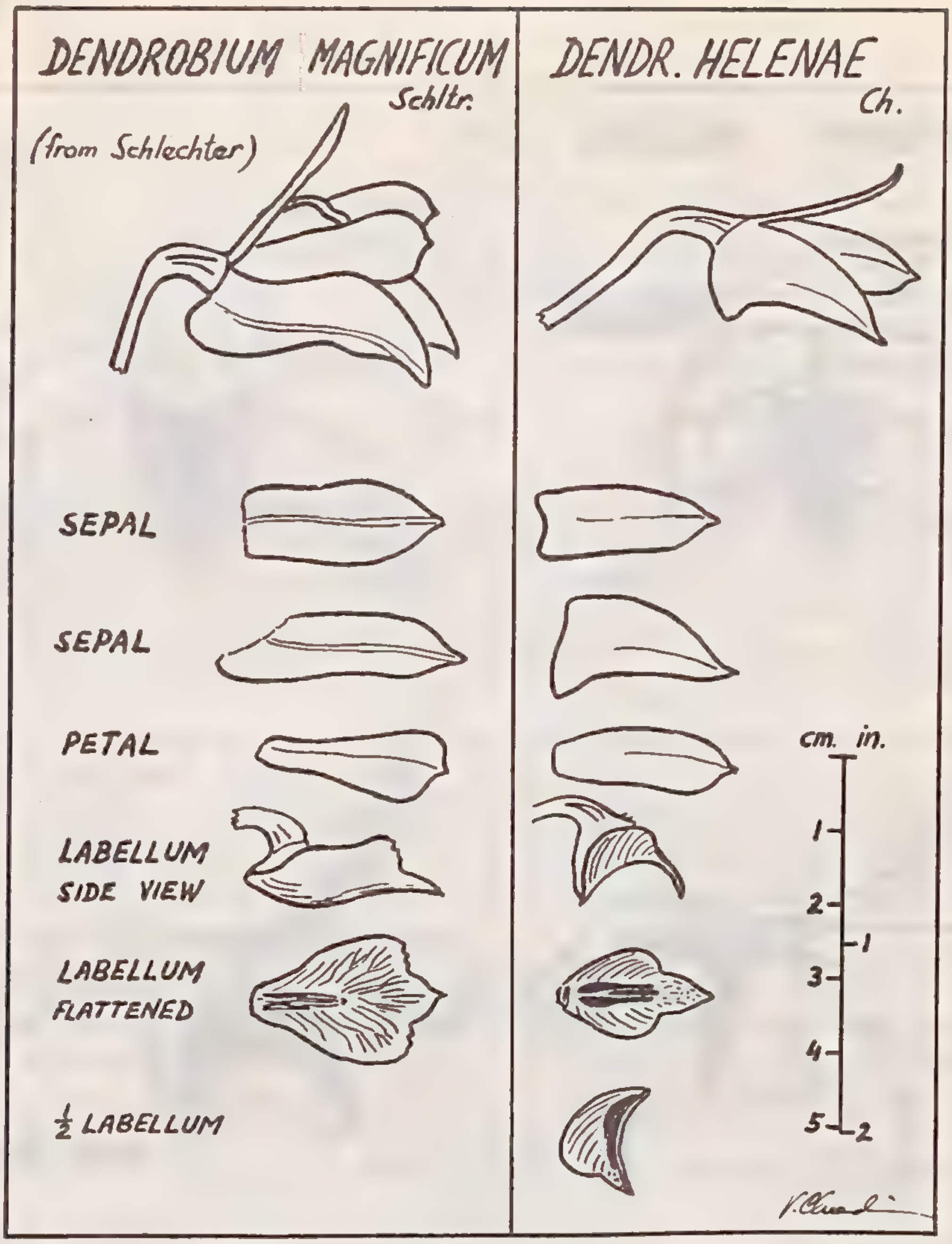
D. helenae grows in the Tomba - Tambul area, in the Western Highlands of New Guinea, at an altitude of about 8,000 ft., where the temperature drops well below the freezing point on clear nights, and it was also found by Mrs. Andrée Millar at Keglsugl, at 10,000 ft. Unlike other New Guinea Orchids from lower altitudes, it is used to extreme variations in temperature, and would probably produce hybrids which would grow in Melbourne unprotected, if crossed with other Latoureas. It is a very hardy species, the first plant I saw grew at the very top of a huge dead tree, and flowered profusely.

The pseudobulbs are 2 - 4 ft. long, very thin, with up to 7 leaves, and produce 8" long racemes of 15 - 20 flowers. There are at least two colour varieties, one with pure white sepals and petals, the other with strong crimson suffusion on the outside surfaces. Both have labella thickly striped and spotted with crimson, with very dark callus and column foot. The labellum tip of the flowers collected at Tomba was greenish.

I named this species after my wife, who had to stay at home alone on the day I found it - it was our wedding anniversary.

Continued Page 60.


DENDROBIUM HELENAE CH.
CROSS-SECTION



A New Species of Dendrobium from New Guinea cont'd.

Dendrobium helenae Ch., nov. spec.

Epiphyticum, erectum, 60 - 120 cm altum, rhizomate valde abbreviato, radicibus crassiusculis, elongatis, glabris; pseudobulbis cylindraceis longitudinaliter striato-sulcatis, 50 - 110 cm. longis, 6 - 15 mm. crassis, in statu juvenili vaginis alte amplectentibus obtectis, 4 - 7 foliatis foliis erecto-patentibus, ovalibus, obtusis, interdum paululum inaequaliter bilobulatis, interdum apice perbreviter excisis, glabris, textura coriaceis, 10 - 12 cm. longis, medio fere 4 - 6 cm. latis, 9 nervis, racemo erecto ad apicem caulis, 15 - 20 floro, usque ad 20 cm. longo, bracteis ellipticis, acuminatis, 14 - 16 mm. longis, 11 mm. latis, ovario cum pedicello glabro, ad 5 cm. longo, floribus glabris, illis Dendr. magnifici Schltr. similibus sed minoribus, sepalis oblongis, subacuminato-apiculatis, 19 - 23 mm. longis, 9 mm. latis, lateralibus obliquis, mentum angustum conicum obtusum c. 11 mm. longum formantibus; petalis oblanceolatis apiculatis, 19 - 23 mm. longis, basi 3 - 4 mm. latis, infra apicem ad 9 mm. dilatatis; labello transverse concavo, in longitudinem convexo, circuitu obovato,quarta parte anteriore trilobato, 18 mm. longo, arte explanato inter apices loborum lateralium 11 mm. lato, lobis lateralibus subtruncatis, intermedio triangulo acuto, callo carinis 3, 2 lateraliums parallelis, basi ampliatis e basi labelli usque in tertia parte anteriore decurrentibus, intermedia parva e medio labelli usque inter lateralae interjecta, columna perbrevi, clinandrio trilobulato, lobis apiculatis, pede concavo.

New Guinea, Western Highlands, near Tomba, altitude approximately 2,700 metres, flowering August 1964, CH-251 (pure white variety), CH-252 (crimson suffused variety).

New Guinea, Eastern Highlands, near Keglsugl, altitude approximately 3,300 m., flowering August 1964, Andrée Millar N.G.F. No. 23775.

V.A. Chadim, 8 Parker Street, Curtin. Canberra. A.C.T.

Fear to Tread. cont'd from Page 51.

as in an area of about three hundred yards I noted Sarcochilus falcatus, and S. ceciliae in small quantities and S. hartmannii in abundance. Dendrobium kingianum, D. gracilicaule, D. gracillimum, D. speciosum and D. beckleri. Liparis reflexa and three Bulbophyllums. Dendrobium tenuissimum and D. pugioniforme were also quite near and what I believe to be Sarcochilus spathulatus. Possibly many others could be found by a more critical inspection.

I sat wedged behind a sapling for some time, enjoying the vista of the gorge below, possibly descending over two thousand feet. I did not enjoy the myriads of March flies, who's bite leaves one scratching, nor the leech I literally emptied from my boot.

Another fire break led me along a razor back ridge, on which were a number of Negrohead Beech (Nothofagus moorei), all dead, possibly killed by some freak storm. All had quantities of Dendrobium falcorostrum in perfect condition. One tree had blown down and the D. falcorostrum was quite undisturbed. This was interesting. We usually expect the small marsupials called Pademelons, to defoliate all D. falcorostrum on the ground, and they were very plentiful in this locality.

A 'dozer driver told me of a Bower Bird (Ptilonorhynchus violaceus) playground. Quite exciting this as the labyrinth of tracks and roads, mostly only brushed by a 'dozer were as intimately recalled by these bush workers as are the streets in the city, yet they can give you precise identification, as to the exact spot.

I found the playground. As usual, snail and cicada shells in abundance, a few yellow flowers I could not identify and some puce hardenbergia -- but no orchids. This was disappointing, as Dendrobium kingianum, D. falcorostrum, D. gracilicaule, Sarcochilus hartmannii and a Caladenia sp. were in flower. A possible explanation. The playground was newly built, hardly completed in fact. I would like to think he had not brought the lady home yet and the orchids were to be a surprise. It's amazing what can be achieved with orchids at the right time and place. On the more clear area of the plateau a large variety of terrestrials were noted: Thelymitra sp., Dipodium punctatum, Diuris sulphurea to mention only a few.

Orchid hunters in these timber forests should be always alert for timber lorries. (Providing one has permission to collect in the area and has a license Ed.) Huge loads, sometimes totalling 29 tons and at times 60 feet long. They can often, but not always, be heard in time for you to select a passing position. The drivers are as considerate as they are capable, but to meet a lorry on a mountain side, wide enough for only one vehicle, can be a problem.

On a densely wooded hillside I walked through a variety of trees that dotted the slope. About half way down was a belt of Black Wattle (Callicoma serratifolia) that only grew on a particular contour, possibly 100 yards wide. Mostly covered with moss and with hundreds of Sarcochilus falcatus from ground level, to twenty feet high. Some had masses of Bulbophyllum elisae, often intermingled with Dendrobium tenuissimum, D. pugioniforme and D. teretifolium var. fairfaxii. Possibly more could have been found by a more hardy hunter, but as the undergrowth was shoulder high I soon made off for the track on the ridge and returned to camp.

Here a job awaited me, of which I had some prior knowledge. A bulldozer had uprooted an outsize tree fern on one of the fire roads and the butt had been brought into camp. About 5 feet in length and 6 feet in circumference. After avoiding the core, I sawed boards with a width of 22 inches. These were cut longitudinally with a thickness of 1½". Not a hard job, if you can use a cross cut saw. In due time they will be mounted with a variety of epiphytes.

To wake at daybreak, actually a life long habit of mine and hear the numerous bush birds, all in different key, yet the whole very harmonious, is an enjoyable experience. The occasional raucous me-ow of the Green Cat Bird (Ailuroedus crassirostris) offered an interesting, if somewhat discordant note. With the brightening of day the myriads of cicadas began their drumming. Full of the expectations of the joy of living, after, so it is said, seven years underground, in the nymph stage they emerge, mostly at night and climb the nearest tree. Here they moult and leave their casing as mute evidence of their passing. The male cicada has an inbuilt membrane or drum, on which he beats a lively fanfare, an attraction I believe, to his fair partner. As the day warms, the drumming becomes even more vigorous, until little can be heard above the din. Beyond defoliation of smaller twigs, occasioned by the female making incisions in the stem in which to lay eggs, and their subsequent breaking off, I am unable to ascribe any particular damage to the cicada. A heavy defoliation may of course, have some influence on our epiphytes.

The Lyre Bird (Menura novae-hollandiae) was seen, but more often heard, added something of interest. One of the finest mimics, these birds can imitate almost anything. In times past I can recall the sound of sawing, the bullock drivers whip, the creaking of the waggon, but never,

Continued Page 62.

Fear to Tread. cont'd.

I must confess, any attempt to imitate the Bullock Driver. Possibly "Menura" has his limits. Commonly believed to live entirely on insects etc. but no mention as to his partiality for terrestrial orchid tubers. This however, I am credibly informed, is by no means uncommon. Extensive areas have been noted as having been worked over in search for these morsels. For food, surely one can hardly assume that our "Menuras" know anything of Dioscorides theory. However, time to pack up and start down the forest road. We pass again the stand of "Blue Gum" (Eucalyptus saligna) and the colony of "Bell Birds" (Manorina melanophrys), which are, I believe, only found in Blue gum stands We do not look for epiphytes here, as the smooth bark Fucalyptus shed their bark annually and are impossible as hosts. It has been a hot and dry time and our interest in orchids must now give way to more mundane things. The village is in sight.

Bill Murdoch, Robey Road, Coal Point. Toronto. N.S.W.

SOME COMMON ORCHIDS OF THE SYDNEY METROPOLITAN AREA.

P.H.T. Uhlherr.

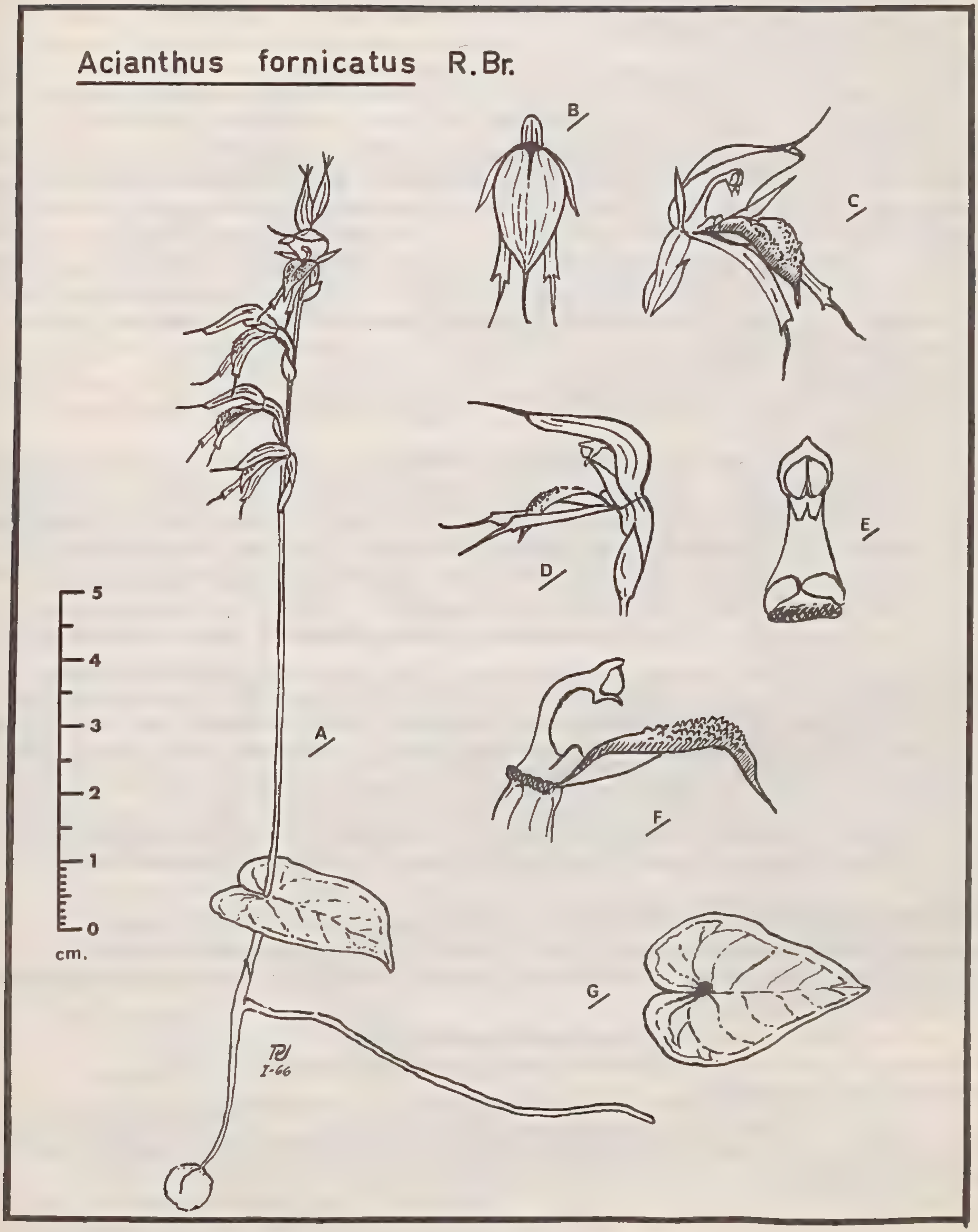
Beginners, like myself, may be interested to search for the very common mainly terrestrial orchids that grow in many Sydney suburbs. Although these orchids occur commonly, they are not always easy to identify, and it is hoped that a detailed drawing of each species, accompanied by a botanical description based on H.M.R. Rupp's "The Orchids of N.S.W." (1943) or on other sources, together with my own observations, will help the Sydney beginner to find and identify the large number of native orchids growing within easy reach of his home.

Orchids may be found in virtually any small area of relatively undisturbed bush. The areas I have searched at various times include Menai, Loftus, Illawong, Lugarno, Oatley, Peakhurst, Hunters Hill and Lane Cove National Park. There are countless other areas where orchids are certain to grow.

Below is a list of species I have found during my first year in Sydney. This list does not include orchids found in the Royal National Park, south of Sydney.

Species		Start of flowering period - 1965.
Acianthus	caudatus	July
	exsertus	April
	fornicatus	June
	reniformis	July
Caladenia	alba	August
	alba var. picta	May
	caerulea	August
	carnea	September
	carnea var. exigua	September
	tesselata	September
	testacea	September
Caleana	major	September
	minor	November
Calochilus	campestris	September
	grandiflorus	September
	paludosus	September
	robertsonii	September
Corybas	---	June
Cryptostylis	erecta	October
	subulata	November
Cymbidium	suave	
Dendrobium	linguiforme	September
Dipodium	punctatum (both types: with & without chlorophyll)	November
Diuris	aurea	September
	maculata	July
Galeola	cassythoides	October

Species		Start of flowering period - 1965.
Glossodia	major	August
	minor	August
Liparis	reflexa	May
Lyperanthus	suaveolens (green form & brown form)	September
Microtis	oblonga	October
	parviflora	October
	unifolia	October
Orthoceras	strictum	November
Prasophyllum	elatum	September
	flavum	November
	nigricans	February - March
Pterostylis	acuminata	March - April
	concinna	July
	curta	August
	grandiflora	July
	longifolia	August
	mutica	September
	nutans	August
	pusilla	September
Rimacola	elliptica	
Thelymitra	carnea	September
	ixiodes	September
	pauciflora	September
Spiculea	irritabilis	?



ACIANTHUS FORNICATUS R. Br. — Key to Plate.

A. Plant .... to indicated scale X 1.
B. Flower from above .... to scale X 3.
C. Flower .... to scale X 3.
D. Flower from side .... to scale X 3.
E. Column from front .... to scale X 6.
F. Column and labellum from side..... to scale X 4.
G. Leaf .... to scale X 1.

Some Common Orchids of the Sydney Metropolitan Area. cont'd.

Where he specific name is omitted or followed by a query, the identification of the species is doubtful Where no flowering time is given, the plants were not found in flower. The more common species will be described first.

1. Acianthus fornicatus R. Br.

   Stem slender, reddish brown or green, 6 - 30 cm. high including the inflorescence. Leaf cordiform, basal or slightly above the gound, dark green above and greenish purple to bright purple below. Up to 10 flowers, perianth pale red-brown, translucent; labellum dark red-brown and green or sometimes wholly green. Dorsal sepal ovate-lanceolate, usually 1 - 1.5 cm. long, cucullate over the column; tip usually acuminate or ending in a filament up to 5 mm. long. Lateral sepals linear, about as long as the dorsal, slightly deflexed, parallel under the labellum or somewhat divergent, sometimes partly connate; the tips frequently notched and produced into filaments a few millimetres long. Petals half as long as the sepals, narrow-lanceolate. Labellum 1½ times as long as the petals, sessile, oblong-lanceolate, acute, erect. and concave at the base, with two calli, thereafter horizontal with two papillose ridges, usually dark red-brown, not extending to the tip, which is frequently deflexed between the lateral sepals. Column incurved within the hood of the dorsal sepal, wingless. Anther apiculate, stigma prominent.

   Acianthus fornicatus is undoubtedly the commonest orchid of the Sydney area. The leaves may be found in mats of literally thousands, particularly along the Georges River and in nearby suburbs. It flowers from early June to August, generally under fairly dense cover.

2. Caladenia carnea R. Br.

   This is a very variable species. Typically 5 - 20 cm. high, slender with a linear leaf up to 12 cm. long, hardly hairy. Flowers 1 - 5 varying from white to dark pink. Dorsal sepal erect, narrowly lanceolate, from 8 to 15 mm. long; lateral sepals spreading, lanceolate from 10 - 20 mm. long. Petals spreading, shorter or longer than the sepals. All perianth segments greenish or brownish, glandular on the outside. Labellum much shorter, practically sessile, trilobed. Lateral lobes erect, with entire margins, rounded in front; mid lobe recurved, dentate or with fringing yellow-tipped calli. Calli of the lamina yellow, clubbed, in two rows to the bend of the labellum. Lamina and column conspicuously barred with heavy, red, transverse lines. Column about as long as the labellum, fairly narrowly winged.

   Cadadenia carnea flowers from August to October in fairly open positions and is distributed over the whole Sydney area. Plants flowering early in the season are extremely slender and quite small, usually with brownish stems and single, small, white or pale pink flowers. Those plants which flower later in the season are generally somewhat more robust, taller, and their green stems carry more and larger flowers. The number of flowers per stem and the incidence of darker shades of pink increase as the season progresses. At the end of the flowering period, attached twin-flowers can be found sharing some of the perianth segments and the column but having two labella. This may indicate that the plant population produced during one season is extremely large, increasing the probability of twin production.

3. Caladenia carnea var. exigua (Cheeseman) Rupp.

   Very small, slender plant about 8 cm. high, with a linear leaf 3 - 4 cm. in length. Perianth segments narrow lanceolate, white inside and pale green glandular outside, spreading, about 9 mm. long. Labellum and column similar to those of Caladenia carnea, with the following differences:

   a. laminal calli much more slender.
   b. transverse red bars much less bold and somewhat wavy.
   c. mid lobe with only a single yellow marginal callus or tooth on each side.
   d. labellum tip bright yellow.

This variety was found in September in two localities (Hunters Hill and Mortdale) among Caladenia carnea. The plants can be easily distinguished from C. carnea even without close examination because of differences in the characteristic perianth forms, as shown by the accompanying diagrams.

To be continued Page 65.
Vol. 2. No.5.

Readers are reminded that all material in The Orchadian, appearing under the name of A.W. Dockrill is copyright.

THE ORCHADIAN

SEPTEMBER

PRICE: 30 cents

PAGE 65

VOL. 2 NO. 5

Published by The Australasian Native Orchid Society

NATIONAL HERBARIUM LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
1 AUG 1967

Patron: *Sir John Hall Best*
President: *E.G. Gordon*
Hon. Secretary: *H. Jay*
Asst. Hon. Sec.: *A. Reeves*
Treasurer: *E. Marygold*
Records Sec.: *R.J. Curtis*
Vice Presidents: *J.H. Scott*
R.G. Napier
Editor: *M.J. Corrigan*
Asst. Editor: *S.C. Clemesha*
Immediate Past President: *W.H. Murdoch*

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

ELECTION RESULTS.

1966-67 elections were decided without the necessity of a ballot, there being only one nominee standing for each position on Council. Results were as follows: President, Eric Gordon; Vice Presidents, R. Napier & J. Scott; Hon. Secretary, H. Jay; Asst. Hon. Secretary, A. Reeves, Treasurer, E. Marygold; Records Sec., R.J. Curtis; Editor, M.J. Corrigan; Asst. Editor, S.C. Clemesha.

Some Common Orchids of the Sydney Metropolitan Area. cont'd.

4. Caladenia alba R. Br.
   Plant fairly slender, 7 - 30 cm. high, with a linear leaf 4 - 8 cm. long; stem and leaf, particularly on the underside, hairy. Flowers 1 or 2, white above and green, glandular below. Form and dimensions of perianth segments similar to those of Caladenia carnea. Labellum three lobed, white. Lateral lobes erect, with entire margins; mid lobe with white fringed margins and a deflexed yellow-orange tip. Two rows of slender, white, gammate calli extend to the bend of the labellum. Column green near its top and white below.
   Caladenia alba flowers from August to October in open forest, frequently together with C. carnea. Where C. alba and C. carnea grow together, natural hybrids can usually be found. These agree exactly with C. alba, except that the column and occasionally both column and labellum are barred with transverse red lines as in C. carnea. Some hybrid specimens have been found with indivudual red bars indistinguishable, the column being merely blotched with red. Such specimens could easily be confused with C. alba var. picta, the only difference being the gradual grading of the colours white-red-green both on the inner and outer surfaces of the column of the latter whereas the hybrid specimens have a red rectangular blotch with sharp contours on the inner surface of the column.
5. Caladenia alba var. picta Nicholls
   Similar to C. alba but with the following differences:
   a. calli more slender and taller.
   b. labellum tip reflexed or even revolute.
   c. column tricoloured: white below, red middle and dark green upper part, the colours fusing gradually.
   d. labellum side lobes may be white as in the type or deep pink.
   e. the perianth may be white above and green glandular below as in the type, or pink above and red glandular below; pink flowers usually larger than white flowers.
   f. leaf apparently glabrous.

Caladenia alba var. picta flowers from May to June, over one month before C. alba commences to flower, but in the same areas near the Georges River.

P. H. T. Uhlherr, 14 Bannerman Street, Mortdale Heights, N. S. W.

PRESIDENT'S REPORT - 1965/66.

In presenting the third Annual Report and incidentally, my last report as your President, I can only say our progress to date has been most gratifying. Our Senior Vice President and President elect, has been the guiding hand in many of our activities. As a botanist of considerable standing and knowledge he has insisted on botanical exactitude in our publications, whilst his broad business experience has been of much service.

Our Editor continues to perform his exacting task with his customary efficiency, ably backed by his Assistant Editor Steve Clemesha who has spent the last year in compiling a complete list of the valid orchid species of Australasia.

Volume 1 of The Orchadian is now available bound, complete with index. This alone amply answers the question posed on the formation of our society viz. Is this organisation warranted? For botanical accuracy this publication has few rivals.

A special issue of The Orchadian containing previously published papers was prepared and forwarded to the 5th World Orchid Conference for distribution to registrants. Resulting membership applications and enquiries have amply justified the effort. An attending member, Dr. Keith Kirkland prepared and presented together with colour slides, a paper titled The Orchids of Australia, considered by the cognoscente to be the finest paper presented.

Three N.S.W. Groups have now been formed. The last being in Newcastle, where they have undertaken to introduce native flora from certain private properties into a local forest reserve of approximately 8 acres.

Membership now stands at 338 as at June 1966. When it is realised that we depend on subscriptions for our finance and the fact that The Orchadian requires in the vicinity of $150 per issue, our position can readily be appreciated. We are faced with the problem whether to increase our subscription, reduce the size of The Orchadian, publish less frequently, or reach out for more members. The answer to this is obvious and the solution entirely in your hands.

I think I shall close this report with the same request that was made when the Society was formed. Do YOU know of others who are interested in Native Orchids and are not yet members of the Australasian Native Orchid Society? If so, will you forward their names to our Secretary ?

Finally I wish to thank all who have shown an interest in the progress of our Society and, as the Sentimental Bloke said, "I dips me lid".

W.H. Murdoch.

Dendrobium pugioniforme Cunn, & D. beckleri F. Muell. - INTERESTING FORMS.

S.C. Clemesha.

While studying some flowering plants of D. Beckleri in flower at the home of Mr. P. Fetherstone, during late September 1965, we were both surprised at seeing one plant bearing flowers with the normal creamy-green coloured sepals and petals but, with pure white labella completely devoid of the purple coloured markings that are normal for this species.

About two weeks later, while in the Dungog area with Messrs. Corrigan, Gordon and Dowling, the author visited a rain forest in which D. pugioniforme grew in abundance. Mainly out of curiosity the author examined closely the flowers of the first flowering plant of this species seen and to his surprise the sepals and petals were greener than is normal for this species and the labellum was pure white and completely devoid of the irregular and unequal purple marking for which the 3 species mentioned in this article are noted (excluding D. mortii and D. striolatum).

The attractive flowers were reminiscent of those of D. mortii or D. striolatum. After finding this plant, literally hundreds of plants were examined in an attempt to find other specimens of this form but every plant seen had the normal puple marked labellum.

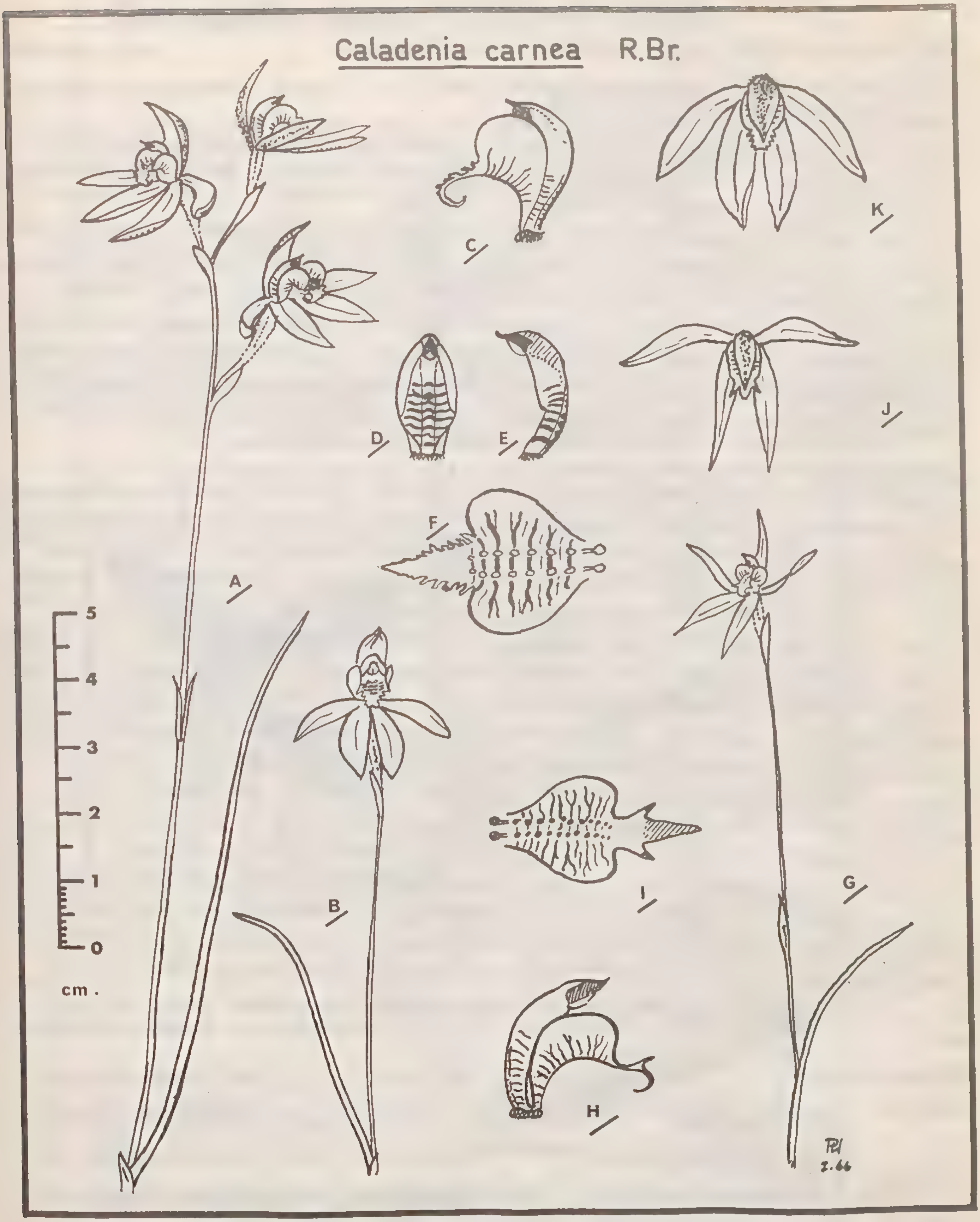
It is highly probable in my opinion that a white labellum form of D. tenuissimum exists and would be most interested to hear of anyone finding it.

S.C. Clemesha, 3 Consett Street, Concord West, N.S.W.

IMMEDIATE PAST PRESIDENT

Following the ratification of Amendments to the Constitution published on page 37 of Vol. 2 of The Orchadian by members present at the Annual Meeting on 24-9-66 I am happy to report that Bill Murdoch assumes the position of Immediate Past President of the Society.

Bill has done a magnificent job as President of the Society during its formative period and I am sure that many members are unaware of the amount of time Bill has spent in travelling to Sydney for Council meetings from his home at Toronto, near Newcastle. A trip requiring departure from his home mid-morning and a return well after midnight as often as 25 times each year.



CALADENIA CARNEA R. Br. – Key to Plate

A. Late flowering plant of var. carnea
to indicated scale X1
B. Early flowering plant of var. carnea . . . X1
C. Column and labellum from side X3
D. Column from front X3
E. Column from side X3
F. Labellum from above, flattened X3

G. C. carnea var. exigua (Cheesman) Rupp. . X1
H. Labellum and column from side X3
I. Labellum from above, flattened X3
K. Flower or var. exigua from above X2
L. Flower of var. carnea from above X2

THE GENERA ZEUXINE AND CHEIROSTYLIS IN AUSTRALIA.

A.W. Dockrill.

In this paper the species Zeuxine attenuata R.S. Rog. et C.T. White is reduced to a synonym of Cheirostylis ovata (F.M. Bail.) Schltr.

During December 1964 the present author was privileged to carefully examine the holotype specimen of Zeuxine attenuata R.S. Rog. et C.T. White, which is housed in the Queensland National Herbarium, and it was quite obvious that the authors erred in placing the plant in this genus, when in fact, it is a Cheirostylis and identical with C. ovata (F.M. Bail) Schltr. and should be known as a synonym of that species.

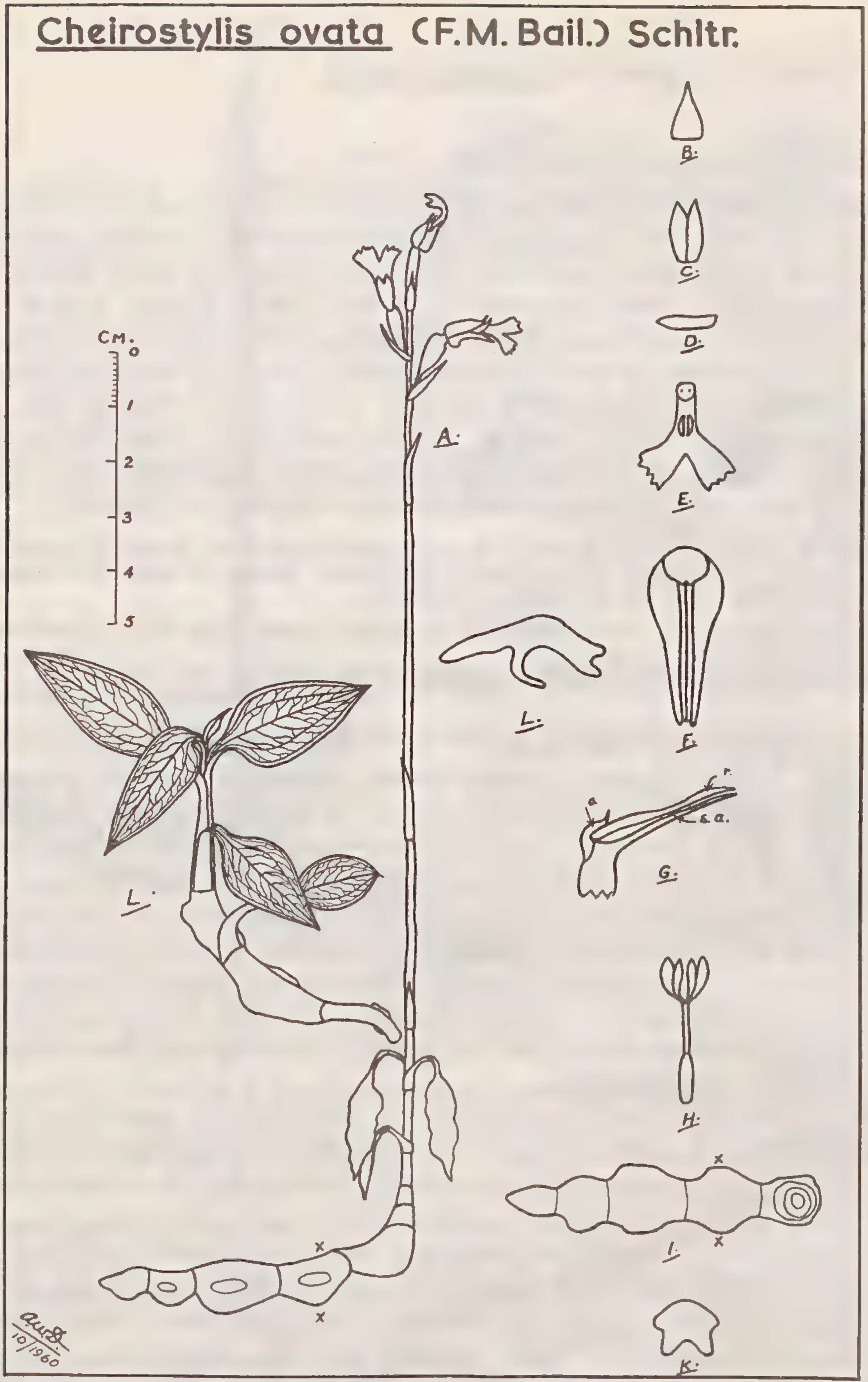
The genera Zeuxine and Cheirostylis are very closely related and quite readily confused. They are both ± deciduous and both arise from supraterranean rhizomes, have a rosette of leaves and a terminal inflorescence of from a few to many small flowers which are not widely expanding and have the labellum at the bottom. The labellum has a saccate base which contains small calli or papillae and a transversely broadened, usually 2 lobed apex. The column has 2 small stigmas, one on each side. In Zeuxine the sepals and petals are close together but not joined, the dorsal sepal and petals galeate; the saccate base of the labellum has 2 small calli and the expanded 2 lobed apical lamina is not pronouncedly toothed. In Cheirostylis the sepals are adnate to each other for half of their length and the dorsal sepal adnate to the petals; the saccate base of the labellum contains a few small calli or papillae and the expanded bilobed apical lamina is usually pronouncedly toothed. Only a single species of each genus is at present known to occur in Australia and a description of these will follow:

Zeuxine oblonga R.S. Rog. et C.T. White, Proc. Roy. Soc. Qld. 32:123 (1921).
Plant terrestrial or occasionally lithophytic, when in flower 10-45 cm. tall. Rhizome and stem ± equal in diam., 2 - 4 mm., brittle. Stem 5-15 cm. tall with several leaves scattered along it and terminating in a rosette of a few leaves; the cauline leaves usually dry much before those of the rosette, but often those of the rosette are also dry at flowering time. Leaves rather pale green, not petiolate, sheathing, 3 - 8 x 1.2 - 3.0 cm., ovate, often unevenly so, margins often undulate. Inflorescence 5 - 30 cm. tall, peduncle 1 - 2 mm. diam., peduncle, rhachis, bracts, ovaries and sepals hirsute; peduncle usually much longer than the rhachis; ovaries 8 - 12 x about 1 mm., upright; bracts about half the length of the ovary; flowers 2 - 30, rather crowded, 4 - 6 mm. long, not widely expanding except for the lamina of the labellum, sepals dull green, petals translucent white, labellum lamina opaque white. Dorsal sepal 4 - 6 x 1.5-2.0 mm., ovate or oblong, deeply concave at the base. Lateral sepals a little shorter than the dorsal. Petals about the same length as the dorsal or slightly less but usually slightly broader, suboblong, concave. Labellum about the same length as the dorsal sepal; the deeply saccate basal portion longer than the remainder of the labellum, the 2 calli are about 0.5 mm. long, rounded, linear or reniform; apical lamina, which is separated by a claw from the saccate portion is completely divided into 2 upright, divaricate, equal parts, each about 2 x 2 mm., square or oblong, the apical margins often irregular. Column about 1 mm. long, stout. Stigma in 2 small, quite separate sections on the upper basal portions of the arms of the rostellum ± facing the anther, and appear to be ovoid sacs containing a viscid substance. Rostellum a little longer than the column, porrect, consisting of 2 parallel, rather widely separated arms which taper to thier apices. Anther attached to the posterior portion of the apex of the column and recumbent in between the arms of the rostellum and its rostrum not extending to their apices, red or brown, very narrow. Pollinia 2, granular, not noticably grooved, long and slender, narrowing from the apex to the base, attached by very short caudicles to a short stipes; retinaculum large, almost 1 mm. long, narrow oblong.
Flowering period;- usually July to September.
Distribution:- north-east Queensland and south-east Cape York Peninsula; in rain forests of the coast and ranges from north of the Fitzroy River to as far north as the Endeavour River at least.

Cheirostylis ovata (F.M. Bail.) Schltr., in Engl. Bot. Jahrb. 56:452 (1921); Rupp, Nth. Qld. Nat. 3, no. 19:18 (Feb. 1935).
Synonymy: Gastrodia ovata F.M. Bail., Bot. Bull. Dept. Agri. Bris. 14 (Oct. 1896) & Qld. Flor. 5:1589 (1902).
Cheirostylis grandiflora Maiden, Proc. Linn. Soc. N.S.W. 21:625 (1896) - not of Bl. 1855.
Zeuxine attenuata R.S. Rog. & C.T. White, Proc. Roy. Soc. Qld. 32:123 (1921); Rupp, Orch. N.S.W. 106 (1943).

Plant lithophytic or occasionally terrestrial, 10 - 25 cm. tall when in flower. Rhizome catterpillar-like, averaging about 1 cm. diam., constricted about the nodes, the internodes having "claspers" or "sucker discs" by which the plant is attached to rocks; no roots are present but the underside is beset with minute hairs. Stem 1 - 2 mm. diam., short.

continued page 70.



CHEIROSTYLIS OVATA (F.M. Bail.) Schltr. – Key to Plate.

A.	Plant	to indicated scale
B.	Dorsal sepal	to scale X1½
C.	Lateral sepals	to scale X1½
D.	Petal	to scale X1½
E.	Labellum	to scale X10
F.	Column from above	to scale X10
G.	Column from the side	to scale X10
H.	Pollinarium	greatly enlarged
I.	Rhizome from above	to indicated scale
K.	Cross section of rhizome at X – X	to indicated scale
L.	One of the calli at the base of the labellum	greatly enlarged
M.	Non-flowering plant	to indicated scale

The Genera Zeusine and Cheirostylis In Australia. cont'd.

Leaves 3 - 7, often dead at flowering time, a few arising from the stem, the remainder in a terminal rosette; petioles short or moderately long, shortly sheathing; laminal 15 - 40 x 10 15 mm., ovate, tapering to a sharply acute or almost acuminate apex. Ovaries swollen towards the apex but greatly constricted at the apex itself. Flowers 1 - 6, about 15 mm. long, white, lateral sepals joined together for almost their entire length and to the dorsal sepal for half their length. Dorsal sepal about 11 x 6 mm., ovate-cucullate, acute or acuminate. Lateral sepals about 11 x 3 mm., lanceolate. Petals about 11 x 2.5 mm., narrow-oblong. Sac at the base of the labellum very small and shallow, furnished with 2 minute calli, one on each side, which are 3 horned and one of the horns bifid; disc about twice as long as the sac, narrow oblong, at its apical end are 2 short parallel subcrescentic swellings; lobes of the apical lamina porrect-divergent, about 4 x 3 mm., usually oblong, the apical margin from acute to truncate, dentate. Column about 1.5 x 0.7 mm., but the apical arms and rostellum project + forwards for about 3 mm. Anther with a rather short rostrum directed upwards. Pollinia almost sessile on a stipes about their own length, stipes attached to the end of a narrow-oblong retinaculum of about the same length as the pollinia.
Flowering period: June to September.
Distribution: North-eastern New South Wales to at least the Bloomfield River of south-east Cape York Peninsula. It inhabits those areas of rain forest, mostly of rather low altitude, which are not very dense, such as near water-courses.

A.W. Dockrill, 11 Balzer Close, Edge Hill, Cairns. Nth.Qld.

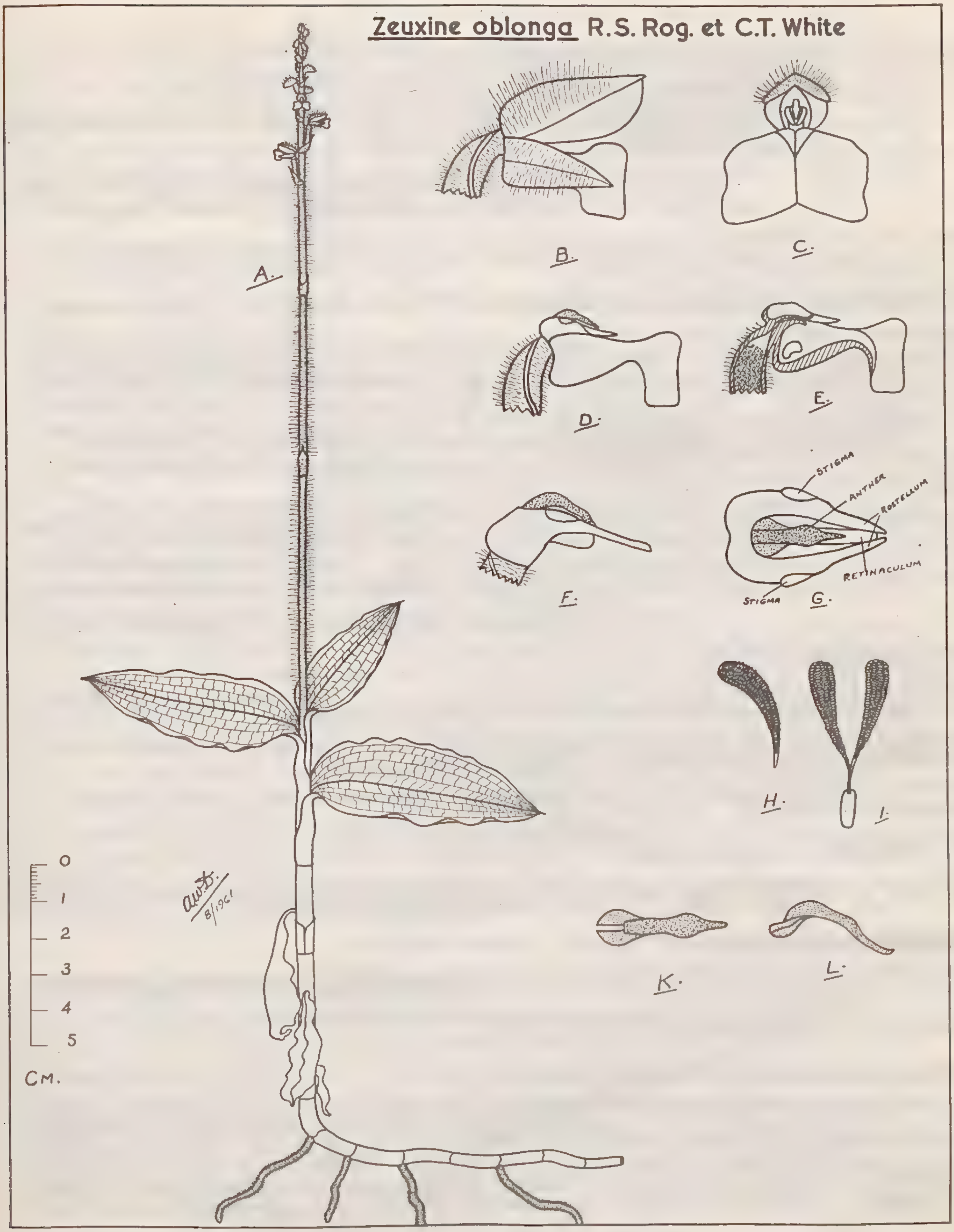
A REVIEW OF THE SPECIES BULBOPHYLLUM NEWPORTII (F.M. Bail.) Rolfe.

S.C. Clemesha & A.W. Dockrill.

In this paper, Bulbophyllum wilkianum T.E. Hunt and B. wanjurum T.E. Hunt are reduced to synonyms of B. newportii (F.M. Bail.) Rolfe.
The species which, for about 20 years, has been almost universally accepted as Bulbophyllum wilkianum T.E. Hunt, is a rather common plant on the ranges and highlands above about 2,500 feet in north-east Queensland. It is extremely variable, with pseudobulbs almost globular, depressed ovoid or conical; flowers 1 - 8, usually not widely spreading but occasionally so, usually white, sometimes fading to pale pink or occasionally pale pink or pale green when first open, and occasionally the sepals, near the base, have a few fine pink spots; labellum curved through about 90 degrees, deeply channelled in the proximal third to half where the sides are high and rather thin and produced in front (i.e. about the middle of the labellum) into almost filiform lobes which are curved forward, sometimes to the extent of embracing the sides, when their detection is difficult; these slender lobes are readily broken off wither by design or accident and are sometimes not well developed; the sides in the distal half of the labellum are decurved through almost 90 degrees to give this portion a ligulate appearance; the margins near the base and in front of the lateral lobes and part of the proximal half of the disc are ciliate to varying degrees.
The description of B. wanjurum T.E. Hunt, which was published in the same issue of the North Queensland Naturalist as that of the preceeding species, falls within the range of variation just given for B. wilkianum T.E. Hunt. In an endeavour to arrive at a correct determination, the original collector of both species, J.H. Wilkie, was asked for assistance, only to be told that he had collected both plants he had sent to Hunt from the same rock on Mt. Bartle Frere and that he had thought them mere variations of the one species.
Why such a common species should remain undescribed until 1947, was a puzzling question, and prompted the thought that it might previously have been described under a different name. The little understood B. newportii (F.M. Bail.) Rolfe, became suspect, and in due course, the holotype specimens of the three species, housed in the National Herbarium at Brisbane, were examined by one of the present authors (S.C. Clemesha) and it immediately became apparent that the three species were conspecific.
In an earlier paper, Orchadian 2, No. 3:40 (June 1966), one of the present authors, (A.W. Dockrill), has pointed out that B. trilobum Schltr. is also a synonym of B. newportii (F.M. Bail.) Rolfe, so the species with its list of synonyms, is as follows:

Bulbophyllum newportii (F.M. Bail.) Rolfe, Orch. Rev. 17:94 (1909); T.E. Hunt, Proc. Roy. Soc. Qld. 60, No. 6: pl. 7, fig. 1 (Dec. 1949) (outline drawing of holotype specimen); Dockr., Orchadian 2, No. 3:40 (June 1966).

continued Page 72.



ZEUXINE OBLONGA R.S. Rog. et C.T. White – Key to Plate

A. Plant . . . . to indicated scale
B. Flower from the side . . to scale X10
C. Flower from the side . . to scale X10
D. Column and labellum from the side . . . to scale X10
E. Longitudinal section of column and labellum . . . . to scale X10
F. Column from the side . . . . . to scale X20
G. Column from above . . . . . . to scale X20
H. Pollimium from the side . . . greatly magnified
I. Pollinia from the front . . . . greatly magnified
K. Anther from above. . . . . . . to scale X30
L. Anther from the side . . . . . to scale X30

A Review of the Species Bulbophyllum newportii (F. M. Bail.) Rolfe. cont'd.

Sarcochilus newportii F. M. Bail., Qld. Flor. 6:2014 (1902)
Bulbophyllum trilobum Schltr. in Fedde, Repert. 8:455 (1910)
Bulbophyllum wilkianum T. E. Hunt, Nth. Qld. Nat. 14, No. 82:17 (March 1947)
Bulbophyllum wanjurum T. E. Hunt, ibid page 18.

A. W. Dockrill, 11 Balzer Close, Edge Hill, Cairns. Nth. Qld.
S. C. Clemesha, 3 Consett Street, Concord West, N. S. W.

Readers are reminded that all material appearing the The Orchadian under the name of A. W. Dockrill is copyright, and must not be reproduced without the permission of the author.

CULTIVATION OF BULBOPHYLLUM NEWPORTII (F. M. Bail.) Rolfe. S. C. Clemesha.

This species grows abundantly in rain forests of the Ranges and highlands of north Queensland seldom below 2,500 ft. altitude, where it shows a preference for trees rather than rocks. In open forest bordering rain forest the species reaches its best development as large mats of it can be found on rocks. The northern limit of its distribution appears to be the Big Tableland near Cooktown, while in the south it extends to the Eungella Range near Mackay. The writer has found that forms from open forest transplant more easily than those from rain forests though the latter could not be called difficult and once established are as hardy as the open forest form (this hardiness is merely the result of more sunlight).
At Sydney, including the colder Western Suburbs, B. newportii will grow easily in a semi shaded bush house and appears to gain no benefit from being placed in glass house. The writer finds tree fern fibre to be the most satisfactory growing medium though knows of others who grow it on "paper bark" (his own attempts to do this failed). It must be remembered that the greater part of this orchid's range is a reserve and removal of plants from it is forbidden by law.

S. C. Clemesha, 3 Consett Street, Concord West. N. S. W.

GROUP MEETINGS.

Sydney Group meets on the second Friday of each month at 8.00 p.m. in the basement lecture hall of King-York House in York Street, two doors from King Street.

Warringah group meets on the second Thursday of each month at 8. 00 p.m. in the committee rooms of Stoney Range Flora Reserve, Pittwater Road, Brookvale.

Newcastle Group meets on the fourth Tuesday of each month at 8.00 p.m. in the J. Young Community Hall, Cardiff.

THE ORCHADIAN - BACK ISSUES.

Members are reminded that all issues of Vol. 1 are again available from our Secretary at 30 cents per copy. Bound copies of Vol. 1 are also available at $6.60 each.

MEMBERSHIP RENEWALS.

Members are again reminded that subscriptions for the year 1966-67 are overdue and should be mailed to the Society, P. O. Box 106 C, Clarence Street, Sydney N. S. W. Remember, the frequency of our publications depends on prompt payment of subscriptions and so get your remittances in the mail on the 30th June of each year.

PTEROSTYLIS ALVEATA J. R. Garnet, IN N. S. W. S. C. Clemesha.

Few of our members will remember the controversy that followed the description of Pterostylis alveata J. R. Garnet, in Vict. Nat. 56:91-92 Fig. A - N (1939) when W. H. Nicholls published a short article stating it was merely an abnormal form of Pt. obtusa R. Br. This was replied to by J. R. Garnet in Wild Life 2;13 (Mar. 1940); & Vict. Nat. 56:t. 10 (1940). The Rev. H. M. R. Rupp supported Nicholl's opinion though as Garnet pointed out Nicholls drew his opinion from a small number of specimens and Rupp was at an even greater disadvantage in that he drew his opinion from a single flower.

continued Page 73.

Pterostylis alveata J.R. Garnet, In N.S.W. cont'd.

The author's opinion after examining hundreds of specimens is that if one saw any number of specimens they could easily pass them off as Pt. obtusa but when a large number are seen the difference then becomes apparent and the absence of Pt. obtusa becomes apparent. The complete absence of this plant in the area where the plants were found and the fact that their differences though not great, were constant in every one of the hundreds of flowers examined shows this plant is different to Pt. obtusa but whether one can regard these differences as sufficient to separate 2 species or only 2 varieties is another argument.
The differences between Pt. alveata and Pt. obtusa observed by the writer are;

Pt. alveata	Pt. obtusa
Labellum black, about 9 mm. long and more or less coffin shaped and as long or a little longer than the column and always visible beyond the sinus.	Labellum green to reddish but never black - linear oblong, shorter than the column and seldom visible beyond the sinus (except in pressed specimens).
Petals only slightly shorter than the dorsal sepal or sometimes the same length.	Dorsal sepal considerably longer than the petals.
Lateral sepals not projected forwards when viewed from the side (or if so only to a very slight degree) near the sinus.	Lateral sepals projected forwards and lip-like near the sinus when viewed from the side.
Flower generally smaller and bearing few purplish markings near the apex of the galea.	Purplish markings absent. Forms with brownish markings occur though extremely rarely.

The author was unable to find any specimens of Pt. alveata with an emarginate tip to the labellum though these have been collected there by earlier botanists.
The fact that the plant grows abundantly where found and forms large colonies has been cited as a difference. The author is unable to agree with this as Pt. obtusa grows abundantly near the Grose River N.S.W. and at times forms large colonies where hundred of flowering plants can be found.
Pt. alveata was discovered at Corner Inlet (Little Snake Island) near Yarram. It was subsequently found near Genoa in the extreme N.E. of Victoria. The one known N.S.W. location is at Tathra near Bega, where it grows in profusion behind the beach immediately north of the town in black sand amongst bracken and Eucalypts. It grows in similar conditions at Genoa. It almost certainly will appear in similar locations in southern N.S.W. now that the swamp dwelling Pt. tenuissima Nich. from extreme S.W. Victoria has appeared in South Australia, Victoria's endemic species of Pterostylis are reduced to Pt. celans Rupp. and Pt. crypta Nich. both of which surely are tetralogical forms of Pt. nana R. Br. and Pt. obtusa R. Br. respectively.
Pt. alveata flowers between March (perhaps even February) and May in N.S.W. this being considerably earlier than in Victoria (May-July).

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

NORTH QUEENSLAND NATURALISTS' CLUB.

The North Queensland Naturalists' Club has recently published a revised edition of their paper, "A Checklist of the Orchidaceous Plants of North Queensland". Revised by Alick Dockrill who is very well known to all readers of The Orchadian and published in May 1966, this checklist contains the most up to date and definitive citations of the orchids of the area. To quote, "The system of primary classification used in this publication is that of Vermeulen, Acta Botanica Neerlamdica 14:230-241 (April 1965). The subtribes are with minor variations, those of Schlechter." The genera listed number 66 and include many just published. Due to some haste in the preparation of the material some small errors occured and these have been covered in an errata and addenda contained in each copy. Pp. 24 (including cover), 8¼" x 5½", stapled, 75 cents each. For your copy of this most important publication which must be in the library of all orchid collectors write to Marion Cassels, Secretary, North Queensland Naturalists' Club, Box 991, Cairns, North Queensland.

THE AUSTRALASIAN NATIVE ORCHID SOCIETY

STATEMENT OF RECEIPTS AND PAYMENTS

GENERAL ACCOUNT

	1965/66	1964/65		1965/66	1964/65
To Membership Subscriptions	$464.50	$453.00	By Rent for Meeting	$ 7.00	$ 4.00
" Bank Interest	51.77	24.00	" Printing & Stationery	39.22	118.00
" Donations	28.20		" Donation - Orchid Society of N.S.W.	14.00	14.00
" Sundry Income		2.00	" Insurance	8.15	8.00
			" Petty Cash Expenditure	58.70	46.00
			" Postage	40.24	34.00
			" Prizes	20.50	
			" World Orchid Conference Paper expenses	22.33	
			" Excess of receipts over payments	334.33	255.00
	$544.47	$479.00		$544.47	$479.00

PUBLICATION FUND ACCOUNT

	1965/66	1964/65		1965/66	1964/65
To Members' Subscriptions	$418.80	$416.00	By Printing (No. 10 to 14 including Index.)	1046.71	443.00
" Donations from Members	20.60	34.00	" Printing - Special Issue World Orchid Conference	319.69	
" Sundry Sales	27.33	2.00	" Binding Charges	59.25	
" Binding	42.00		" Back issues	61.25	
" Excess of payments over receipts	1012.93	19.00	" Petty Cash Expenditure and Postage	34.76	28.00
	$1521.66	$471.00		$1521.66	$471.00

RESEARCH FUND

To Grant	$1950.00	By Expenses in connection with Sarcanthinae publication	
		Postage	$ 14.30
		Typing	83.05
		Plates - Lithography	358.00
		Balance carried forward	1494.65
	$1950.00		$1950.00

E. Marygold
Honorary Treasurer

W.M. Murdoch
President.

I have examined the books of the Australasian Native Orchid Society and report that the above Statement of Receipts and Payments is in accordance with such books.

R.A. PRATT
Chartered Accountant

THE ORCHADIAN

JANUARY. 1967. PRICE: 30 cents PAGE 75.
VOL. 2. No. 6.

Published by The Australasian Native Orchid Society

NATIONAL HERBARIU
LIBRARY
ROYAL BOTANIC GARD
STH. YARRA, S.E.1, V
1 AUG 1967

Patron: *Sir John Hall Best*
President: *E.G. Gordon*
Hon. Secretary: *H. Jay*
Asst. Hon. Sec.: *A. Reeves*
Treasurer: *E. Marygold*
Records Sec.: *R.J. Curtis*
Vice Presidents: *J.H. Scott*, *R.G. Napier*
Editor: *M.J. Corrigan*
Asst. Editor: *S.C. Clemesha*
Immediate Past President: *W.H. Murdoch*

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

THE ORCHADIAN - Back Issues.

All back issues of The Orchadian are available and a letter to the Secretary will reserve your copies. If you require your copies by return post, include 4c per copy to cover immediate return postage as under normal circumstances we will include your back issues with the next posting of the latest Orchadian. Price per copy $0.30.
Fully bound copies of Vol. 1 of The Orchadian are available at $6.60 each.

THE LANGUAGE OF BOTANY.

Several requests have been received from members for publication in The Orchadian, of a list or Dictionary of botanical words. However, as such a task would take many issues to complete and require a vast amount of time to prepare we refer readers to the following excellent little publication.
The Language of Botany by C.N. Debenham, Published by The Society for Growing Australian Plants, and available from The Editor, 250 Picnic Point Road, Picnic Point, N.S.W. 64 pp. 5½" x 8.^{5}/8" with drawn on cover. Price 40 cents, plus 4c postage.

ATTENTION M. GLEESON.

Our Binder has in his possession a fully bound copy of Vol. 1 of The Orchadian, gold stamped with the name M. Gleeson, as an exhaustive check of all records has failed to elucidate an address we would appreciate any information you may be able to provide.

THE ORCHIDS OF AUSTRALIA.

Commencing on page 78 of this issue is the full text of the paper presented at the 5th World Orchid Conference by Dr. Keith Kirkland. As many will recall, this paper was read by Dr. Kirkland on behalf of the Australasian Native Orchid Society. The text with slides is available to all members for a period of one month at $1.00 plus postage. Should you or your group wish to borrow this excellent paper drop a line to our hard working Secretary, Harold Jay.

THREE ADDITIONAL RECORDS FOR N.S.W.

J.A.P. Blackmore

Corybas dilatatus (Rupp & Nicholls) Rupp and Pterostylis foliata Hook. f. from north of the Murray at Batlow and Chiloglottis cornuta Hook. f. from Kosciusko State Park.

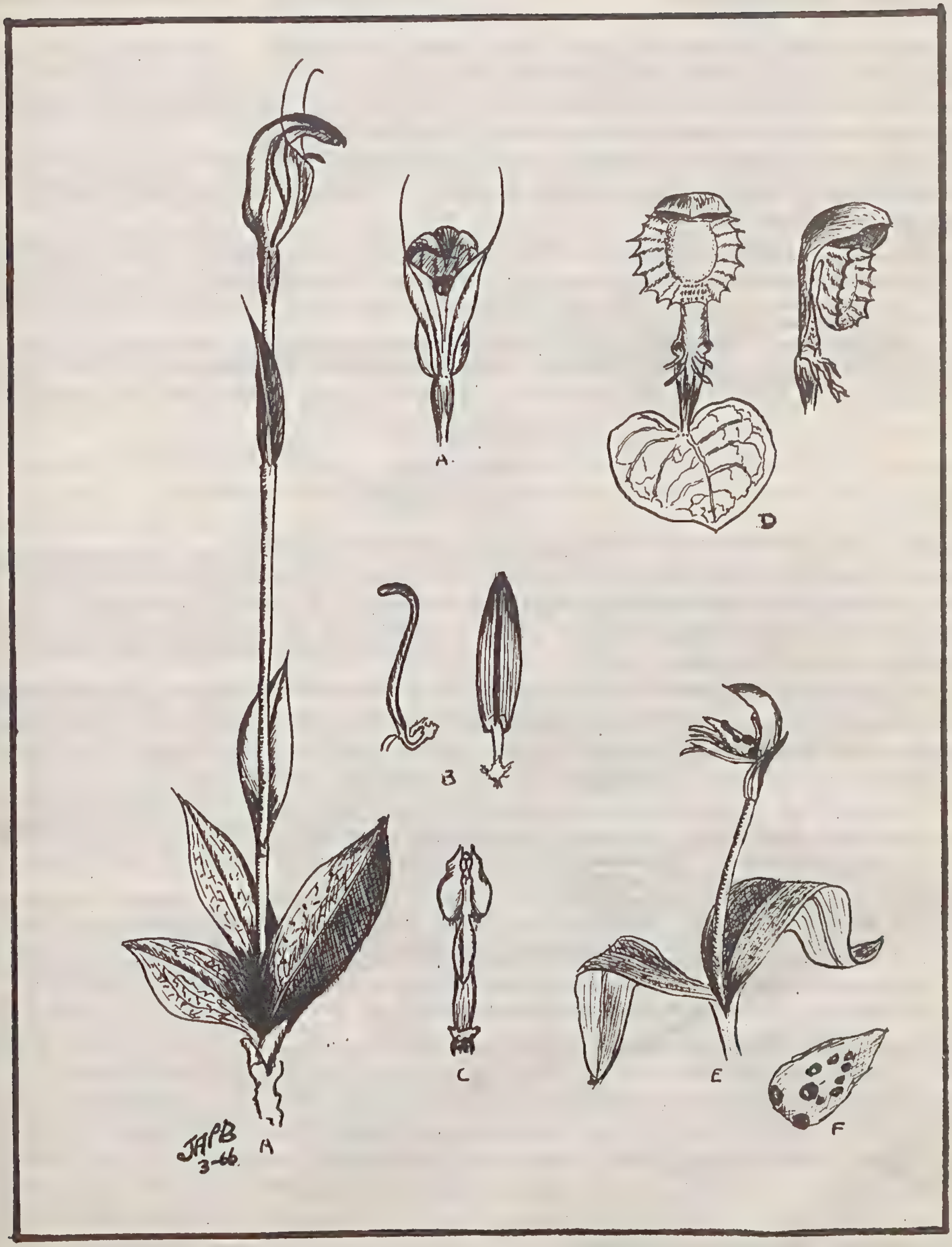
It is not often in recent years, that the list of species to be found in N.S.W. has been added to. The good fortune to add no less than two orchids previously unrecorded has fallen to Keith Giles of Batlow in the southern Highlands. I would hasten to add that these records have been known for some time. In the case of the Corybas, Leo Cady showed me a specimen five years ago, and Wm. Brinsley has had the Pterostylis growing at Bathurst for two seasons. Also the discovery of Chiloglottis cornuta in Perisher Valley was made about five years ago by Lindsay Parker, it is important that such records be published and thus added to our common stock of knowledge. State boundaries are, of course, arbitary lines of division in any botanical sense, but the Batlow collections represent worthwhile extensions to the known range in each case. The occurrence of the Chiloglottis species is more a case of "border hopping".
J.H. Willis, in his excellent "Handbook to Plants in Victoria" (1962) refers to the distribution of Corybas dilatatus as "widespread in cool shaded places of western and southern Victoria often forming extensive colonies under coastal shrubs, in moist rocky defiles or on tree fern trunks in mountain fern gullies". Batlow is approximately eighty miles north of the Murray and about 200 miles from the nearest representative locality given. Corybas dilatatus is also found in Tasmania, South Australia and rarely in Western Australia. Keith Giles has an interesting comment on its habit at Batlow: "The species is quite common above 2,000 feet in the area - Below that level it is replaced by Corybas diemenicus." This habit of lowland southern orchids of growing in N.S.W. at higher altitudes is marked in a number of species e.g. Chiloglottis gunnii or Pterostylis falcata.
It may seem surprising that such a widespread species should only have been described in 1928. This came about through the belief in the southern states that the orchid was Cunningham's Corybas pruinosus which species appears to be limited to N.S.W., mainly on the central coast and tableland.
In the case of Pterostylis foliata, J.H. Willis comments on distribution as "Scattered on forest slopes of south west, southern and north eastern Victoria, but uncommon and apparently absent in East Gippsland." Batlow is approximately 100 miles north of Cravensville, the nearest locality mentioned. The species is widespread in Tasmania and the type locality was the Ruahine Mountains in New Zealand. At Batlow, Keith Giles has also found Pterostylis furcata - only the second locality recorded for N.S.W. for a species previously collected only in the Kosciusko area in this state.
Chiloglottis cornuta Hook. f. was for long known as C. muelleri FitzG. in Australia until it was realised that it was identical with the New Zealand C. cornuta Hook. f. It is widespread in New Zealand but in Australia had previously been found only in Tasmania and Victoria.
J.H. Willis' note on its distribution is "occasional in Southern Highlands of Eastern Vic. where one of the most shade-tolerant orchids, favouring the subdued light of fern gullies, in damp mountain forest and growing often in tree fern butts or rotting logs."
The illustration of Corybas dilatatus is of a large specimen and shows the main features of the species. The coarse but even toothing of the margin of the labellum and the ovary which places the flower well above the flat leaf, should be noted.
The illustration of Pterostylis foliata shows the form as flowered by Wm. Brinsley but more commonly in Victoria it has a quite leafy stem.
The illustration of Chiloglottis cornuta shows the detail of the labellum, which has a variable number of green or dark callii.

John A.P. Blackmore, 25 Holden Street, Ashfield.

THE PROBLEMS OF PUBLISHING BOTANICAL WORKS.

Eric Gordon.

As most of our readers are well aware Botany is by no means a static science and continual research and development goes on and will continue to go on. The forthcoming work, "A Review of the Subtribe Sarcanthinae in Australia and New Zealand" has been held up on several occasions on account of the above mentioned fact. It has now been decided that the work which has been brought about by further research by Alick Dockrill and the fact that Stephen Clemesha has found that there is a sub-species of Sarcochilus ceciliae shall terminate the present work. This means that all the work on Sarcanthinae carried out to the end of 1966 will be published and that any new work will have to be published in The Orchadian or similar publications. It would appear from this that "The Sarcanthinae" will be available about the end of April 1967.


A
D
B
C
E
F
JAPB
3-66
A

THE ORCHIDS OF AUSTRALIA.

Presented at The 5th World Orchid Conference.
Read by Dr.K. Kirkland, April, 1966.

I am honoured at being invited to discuss "The Orchids of Australia". My remarks will cover in an abbreviated form the paper which has been submitted for inclusion in the Proceedings. This latter has been prepared by my colleagues in the Australasian Native Orchid Society and edited by Eric Gordon, who has also taken the photographs of the orchids I am showing today. Full acknowledgement will be made to the contributors in the Proceedings.

(1) Australia was discovered by Captain Cook of England in 1770 and rather more recently by General MacArthur of the U.S.A. Although the total area of the continent is almost as great as that of the United States, the area with an orchid population is limited, The climate is tropical, sub-tropical and temperate. (2)

The Great Dividing Range, close to the eastern coast, extends from north to south and has three or four peaks ranging from five thousand to about seven thousand feet. Most of the orchids are found in the rain forests and other areas of the range and in the adjoining country. The proximity (3) of other land masses is shown in this map and as one would expect many genera found in Australia are to be found in the neighbouring countries. (4)

The orchids are almost all MONANDRAE of the division ACRATONAE. Sub-division further to ACRANTHAE and PLEURANTHAE is made. Terrestrials more commonly occur in the former while epiphytes are found in greater numbers in the latter group. There are five tribes:- (5)

EPIDENDRAE
VANDEAE
ORCHIDEAE
NEOTTIEAE and
ARETHUSEAE

These are further divided to sub-tribes of which a number are endemic.

As about eighty genera are listed and approximately seven hundred and fifty species have been identified, in the time at my disposal I can only deal briefly with the subject, so I would propose to show pictures of the most interesting species and comment on outstanding features. In consequence, the value of my presentation must be lessened by the compromise between detail and brevity. The majority of the orchids flower in the Australian spring and this accounts for our inability to show many blooms at this conference. (6)

The tribe EPIDENDREAE contains seven sub-tribes, all of which are epiphytic but three contain terrestrial members. The genus DENDROBIUM belonging to the sub-tribe DENDROBINAE is the most prominent orchid group in Australia with approximately sixty species. It is convenient to consider them in three main groups, tropical, sub-tropical and fleshy leaved. The latter occur in both areas but are so distinct as to warrant separate consideration. (7)

Distribution of this genus is quite wide and you will see from the map which has been copied from Vol. 1 of Veitch's Manual of Orchidaceous Plants, that there is also a considerable Dendrobium population in New Guinea and in the other island groups north of Australia and this distribution extends to south east Asia. When the map was published, towards the end of last century, little was known of New Guinea but the blanks have since been filled. (8)

Dendrobium bigibbum var phalaenopsis forma compactum, the wellknown Cooktown orchid is an example of the tropical group. Although tropical, it grows freely (9) and flowers each year in my cold glass house in Sydney. Dendrobium ruppianum (10) grows in semi-tropical areas, both in rain forests and adjacent forest areas. It is quite a robust plant. Dendrobium speciosum (11) is the largest and tallest of the sub-tropical species and is found from north Queensland to Victoria, which is a distance of about three thousand miles, growing commonly on trees (12) and on rocks. Dendrobium aemulum (13) occurs in two forms, one restricted to brush box forests and the other to the eucalyptus species, commonly called iron bark. As you will see (14) in this picture, it grows in light away from the sun. Dendrobium gracilicaule (15) is abundant in southern Queensland growing on trees and on rocks in the open sun. var. howeanum (16) which is quite striking is found only on Lord Howe Island. Dendrobium tetragonum (17) is a variable species, growing mainly on tree trunks, in the shaded rain forests of Queensland and New South Wales. Dendrobium kingianum (18) is also most variable in growth, habit (19) and colour (20). It grows (21) almost invariably on rocks in nature but is easily cultivated in leaf mould and sand stone. This picture (22) shows the variation in colour and form. Dendrobium falcorostrum (23) grows at an elevation of from three thousand to four thousand five hundred feet and basically in beech forests. Dendrobium delicatum (24) is a natural hybrid between Dendrobium speciosum and Dendrobium kingianum.

continued page 79.

The Orchids of Australia (Cont'd.)

Members of the fleshy leaved group are mainly sub-tropical in distribution and can be distinguished from other species by their absence of pseudobulbs, by their tough creeping or wiry branching stems and their fleshy leaves. Dendrobium teretifolium (25) has wiry stems which hang downwards under the weight of the pendulous leaves. Most types are very free flowering. The commonest hosts are Casuarina species. Dendrobium linguiforme (26) was the first Dendrobium to be described in Australia. It has a tough creeping rhizome and fleshy leaves, resembling a large thumb nail. It grows on trees and on rocks from southern Queensland to southern New South Wales. Dendrobium cucumerinum (27) has small gherkin like leaves and in general habit resembles Dendrobium linguiforme. Dendrobium rigidum (28) grows in the lowlands of northern Queensland, essentially a tropical area. Dendrobium mortii (29) is a showy plant, in many respects resembling Dendrobium teretifolium. The genus Bulbophyllum (30) consists almost entirely of small plants of compact growth which produce small flowers. This is Bulbophyllum baileyi (31) which is the largest in both plant and flower form and is essentially tropical in distribution. Bulbophyllum bracteatum, (32) an attractive species, appears to be confined to areas about the New South Wales and Queensland border. Bulbophyllum macphersonii (33) has larger flowers than some and is found in the highlands of northern Queensland (34): Bulbophyllum minutissimum (35) has very small pseudobulbs and the smallest flowers of the genus in Australia (36).

The tribe Epidendreae has three sub-tribes containing terrestrial species but these for the most part are not well represented. This is Phaius australis (37) a species in the genus Phaius belonging to the sub-tribe Bletiinae. Oberonia titania (38) is an epiphyte of the sub-tribe Liparidinae.

Sub-tribe Cymbidiinae of the tribe Vandeae has two genera, Cymbidium, which is epiphytic and Dipodium which is terrestrial. Three species of Cymbidium occur, all endemic with fragrant small flowers. Cymbidium madidum (39) is used in hibridisation, as it alone responds to ordinary methods of cultivation. Cymbidium suave (40) has small flowers which vary from pale green to chocolate. Cymbidium canaliculatum (41) has slightly larger flowers and var. sparkesii (42) is a dull purple colour. This species grows in hollow branches and trunks of trees across the northern half of the continent, often in areas with a very low rainfall.

Dipodium punctatum (43) is a species of the terrestrial genus.

The sub-tribe Sarcanthinae (44) is well represented with twenty genera, the majority of which are confined to the tropics. It is doubtful if the genus Sarcochilus is represented outside Australia. Few of the ten species respond well to ordinary methods of cultivation. Fortunately two large lithophytes Sarcochilus hartmannii and Sarcochilus fitzgeraldii (45), each with a limited distribution are easily grown in leaf mould and sandstone. This is a more colourful form of (46) Sarcochilus fitzgeraldii. Sarcochilus falcatus (47) has delightfully fragrant flowers up to 2.5 cm. across but cultivation is difficult.

The tribe Orchideae, well represented in Europe is only represented in Australia by two closely related genera, Habenaria and Peristylus. All species are deciduous and confined to the tropics.

The tribe Neottieae (48) has at least seven sub-tribes, three of which are endemic. The genus Diuris, of the sub-tribe Diuridinae is a large genus of about fifty species entirely Australian except for one found in Java. Diuris punctata (49) is lilac to mauve in colour and one of the finest of this group of terrestrial orchids. Pollination in the genus is interesting and it is doubtful if self pollination takes place. In 1933 Edith Coleman published a description of the pollination of two species, Diuris pedunculata and Diuris sulphurea (50) by small native bees. The bee is attracted by the honey disc at the bottom of the small tubular opening formed at the base of the column and labellum. To reach this disc the insect must exert considerable pressure to widen the opening sufficiently for the insertion of the feeding organ. In doing so the bee's head presses against the viscid disc at the top of the column and this adheres to it. The disc and the associated pollinia is removed on withdrawal of the insect and although self-fertilisation may occur, the pollinia may be deposited on the stigma of the next Diuris visited. Attraction to the bee may be of a sexual nature.

Diuris (51) are most commonly found in natural grass country or in open forests, flowering in late winter to late spring depending on the species. Classification is difficult and it is not possible to list accurately the number of recognised species (52). The tendency is to group many together and accept variants of a species as commonly occuring. The problem may only be solved by the raising of any one of this genus from seed.

More than fifty species of the genus Thelymitra (53) of the sub-tribe Thelymitrinae have been described. The genus extends north and south of Australia to New Zealand, New Caledonia and to Indonesia and the Philippines. Thelymitra ixioides in its many forms and varieties is found in all states of Australia and in New Zealand.

The genus Prasophyllum has upwards of eighty species. The section Euprasophyllum is more robust than the section Micranthum in which the plants are small and attenuated with very small to minute flowers. In the species (54) in the first section the leaf is long and terete and this

continued page 80.

The Orchids of Australia (Cont'd.)

genus has been described as the "leek orchid" because of its form. The example Prasophyllum elatum is found in all states and is very varied in size, colour and habitat. Prasophyllum fimbriatum (55) and Prasophyllum aureoviride (56) are examples of the diminutive or pygmy form.

The sub-tribe Cryptostylidinae has one genus Cryptostylis which has six indigenous species occuring generally in the southern states. Cryptostylis subulata (57) (58) however is found in the tropics. This genus has become famous because cross pollination occurs as a result of visits by the male Ichneumon wasps. Edith Coleman, who first observed these visits to Cryptostylis subulata, was of the opinion that the attraction is sexual and the pseudo copulation takes place. This picture (59) shows the very brilliant labellum of Cryptostylis leptochila.

The tribe Arethuseae is represented by about ten sub-tribes five of which are endemic. The genus Pterostylis (60) of the sub-tribe Pterostylidinae of terrestrial orchids numbers more than seventy species and is one of the largest in the country. The external feature common to all is the hooded shape of the flower, which with the predominantly green colouring has given rise to the name of "Greenhoods". This is Pterostylis barbata. In this genus too pollination is interesting. The irritable nature of the labellum, usually springing erect at the slightest touch, plays an important part although the whole flower may be regarded as a remarkable pollinary mechanism. Activation of the labellum by a mosquito or gnat virtually entraps the insect which has been attracted by a secretion at the base of the labellum spring. The labellum (61) in this picture of Pterostylis longifolia is open whereas after activation, it is closed as in this picture (62). Escape for the insect is possible by a special tunnel but in its progress pollen masses become glued to its back. Attraction to another flower results in a repetition of the sequence, when pollen may be brushed against the stigma to ensure cross pollination. Rica Erickson has stated that if the insect fails to escape after about twenty minutes the trapdoor opens. O.H. Sargent witnessed the actual pollination of Pterostylis vittata (63) by a small gnat in 1909, confirming the experiments and theories of the earlier botanists. Edith Coleman in 1934 witnessed and described the pollination of Pterostylis falcata (64) by a mosquito.

No satisfactory classification of the species has been made. Recently it has been suggested that one basis for the subdivision of the genus would be into a group, the members of which are generally single flowered, and another, in which the members are generally multi-flowered. This picture shows Pterostylis grandiflora (65) of the first group, growing in nature with Corybas fimbriatus at its base. Pterostylis woollsii (66) is an example from the second group. Among this group are some species rendered distinct by their reddish colouring, generally designated as "rufous" and Pterostylis boormannii is an example. The genus is principally Australian but species are found in New Zealand and New Caledonia. Many are found in damp well shaded situations but other grow happily on hill sides, in forests or in grasslands and some are even adapted to the arid conditions of inland Australia. Some flowers are only about 1 cm. long, but the flowers of Pterostylis falcata which I have shown and Pterostylis baptistii (68), which you see, may measure up to 7 cm. around the galea.

The genus Caleana of the sub-tribe Drakaeinae is commonly referred to as the "flying duck" orchid. The genus is Australian with two species common to New Zealand. The largest is Caleana major of slender habit, growing to a height of about 50 cm. Most species are found in sandstone country, swampy heath land or in eucalyptus forests. Another fairly common species a miniature of the previous is Caleana minor. (70) It is smaller in growth habit but more flowers are produced on the stem. Another genus is Spiculea and Spiculea irritabilis (71) also has a movable and irritable labellum. Pollination resembles what we have already noted in the other sub-tribes. The raised labellum as shown is activated by a fly or insect which is temporarily entrapped, during which time the pollinia adhere to the invader. Self fertilisation by contact with the stigma occurs. The changed position of the labellum is clearly seen. On release of the insect, by relaxing of the labellum, cross fertilisation may take place when another flower is visited. The genus Caladenia (73) of the sub-tribe Caladeninae consists of more than seventy species, the majority of which are confined to the mainland. Caladenia filamentosa (74) is from the group which are referred to as "spider orchids". This occurs commonly in Western Australia and in the drier inland areas of the eastern states but not in Queensland. Caladenia carnea (75) represents another group. It is an extremely variable plant and numerous varieties (76) and forms are found in all states, in New Zealand and northward to the Malay Archipelago. The colour ranges from pure white to a deep shade of pink and the species grow in all types of country, from swamp land to dry ridged areas.

The sub-tribe Acianthinae (77) has two genera Acianthus and Townsonia. Acianthus caudatus has long caudate segments and the flowers have an objectionable odour.

continued page 81.

The Orchids Of Australia (Cont'd.)

The genus Corybas of the sub-tribe Corysanthinae is represented by about ten species. Five occur in Tasmania and one of these, Corybas fimbriatus (79) extends right through to the tropics. The sub-tribe Vanillinae is represented by a single genus Galeola, with two species. Both are (80) leafless vines, fungus parasites and virtually impossible to cultivate. This is a picture of Galeola cassythoides and specimens forty feet in length have been observed.

At the outset I explained that my remarks today would of necessity be incomplete. I hope however, I have shown enough of the orchids of Australia to whet your appetite for a first hand approach to them. Having seen the pictures you will realise that my presentation was made possible by the expert photography of Eric Gordon, the Vice-President of The Australasian Native Orchid Society.

Dr. K. Kirkland, Wentworth Road, Vaucluse. N.S.W.

BOTANICAL NAMES

Eric Gordon.

The reasoning behind them and some guidance for their pronunciation.

Those brilliant men who prepared and edited the "Shorter Oxford English Dictionary" state, that plagiarism, is among other things, "the taking and using as one's own, the thoughts, writings, or inventions of another" and also that research is "an investigation directed to the discovery of some fact by careful study of a subject".

I hope that the authors of the works that I have drawn on for the following remarks and information will feel that I have been engaged in research, for there is no doubt that my only thought is to make their study easily understood by you, the readers of this publication. The preamble to the "International Code of Botanical Nomenclature" states "Botany requires a precise and simple system of nomenclature used by botanists in all countries, dealing on one hand with the terms which denote the ranks of taxonomic groups or units, and on the other hand with the scientific names which are applied to the individual taxonomic groups of plants. The purpose of giving a name to a taxonomic group is not to indicate its characters or history, but to supply a means of referring to it and to indicate its taxonomic rank" and further, "the only proper reasons for changing a name are either a more profound knowledge of the facts resulting from adequate taxonomic study or the necessity of giving up a nomenclature that is contrary to the rules".

I can imagine that by this time many of you are thinking what is this "taxonomy" and "taxonomics" business that he keeps on about? Well, reference to the Oxford English Dictionary again tells us that "taxonomy" is classification, and botanical works elaborate this further by saying that "taxa" (singular taxon) are botanical categories relating groups of plants with certain similarities (usually floral) and that "taxonomy" is the establishment of taxa and the relating of individual plants to them. There are ranks of taxa laid down in "The Code" of which the ones of interest to us are species and genus. Each species belongs to a genus and the names with which we are concerned at present, mention the name of the genus to which the plant belongs and its own individual (species or specific) name. Usually botanical names are of Latin form, though many are partly derived from other languages, and have the same kind of endings as Latin words and "The Code" recommends that "when taken from any other language than Latin or formed arbitarily they are treated as if they were Latin", In view of this it seems best wherever possible to pronounce botanical names in accordance with the rules of classical Latin pronunciation. Now, this is where the trouble starts. Latin can be, and is, pronounced in several ways, usually dependent on the native language of the speaker. Many languages have words that are similar in form and meaning to Latin words and of course the natural thing for the speaker to do is to base the pronunciation of Latin on the pronunciation of these similar words. As a consequence gardeners and botanists when they come from different countries often fail to realise that the name they are each using is the same name. This situation is by no means new and certainly existed in earlier centuries when Latin was the only language by which many people were able to communicate with each other but it can lead to misunderstanding. It is therefore advisable for us to obtain a working knowledge of the traditional English pronunciation of botanical names as used principally in English speaking countries, and, the Latin pronunciation now accepted by classical scholars which in their opinion "unquestionably presents a reasonably close approximation to the actual sounds of the language as spoken by educated Romans in the first century B.C." This pronunciation which sounds strange to

continued page 82.

Botanical Names (Cont'd)

English speaking people comes closer to the usual pronunciation used by continental people. To most ears botanical names sound most pleasing when they conform to the basic rules of Latin pronunciation. The sounds of the individual letters, the length of vowels and the placing of the accent determine the pronunciation of a word. As in English, vowels have long sounds (cāke, kīte, ēvil, vōte) or short sounds (cǎt, kǐt, ěgg, pǒt): dipthongs are combinations of two vowels pronounced as one (ae, au, ei, eu, oe, ui) and where more than one vowel or dipthong occur in a word it is divided into syllables. In Latin botanical names every vowel or dipthong is pronounced giving ǐx-ī-ō-ī-dēs not ǐx-ī-oidēs. The accent or stress falls on the first syllable when a word has two syllables as aĺ-bus etc.

In words of more than two syllables the accent falls on the next to last syllable, if it ends in a long vowel or a dipthong (for-mṓ-sus) or when two consonants separate the last two vowels (cru-ěń-tus). When the next to last syllable ends in a short vowel the accent falls on the syllable before it (la-tī-fṓ-lǐ-us). When two vowels come together without forming a dipthong it is not quite so simple; if the word is of Latin origin the first is short (caŕ-ně-a): in a word of Greek-origin we have pronunciations such as gi-gan-tḗ-us.

The rules of accentuation outlined apply both to the traditional English and the reformed academic pronunciation of botanical names. The consonants b, d, f, h, l, m, n, p, qu, z, are pronounced as in English. The following table indicates the main difference between the two methods of pronunciation.

	Reformed Academic	Traditional English
ā	as in fāther	fāte
ǎ	as in ǎpart	fǎt
ae	as ai in aisle	as ae in meat
au	as in house	as aw in bawl
c	always as in cat	before a, o, u as in cat before e, i, y as in centre
ch	(of Greek words) as k or kh	as k or ch
ē	as in they	mē
ě	as in pět	pět
ei	as in rein	as in height
g	always as in go	hard before a, o, u as in gap, go soft before e, i, y as in gem, giro
ī	as in machine	ǐce
ǐ	as in pit	pǐt
ng	as in fingér	finger
j	as y in yellow	j in jam
ō	as in nōte	nōte
ǒ	as in not	nǒt
oe	as oi in toil	as ee in bee
ph	as p or p-h (if possible)	like f
s	as in sit, gas	sit, gas
t	as in table, native	table but ti within a word as nation
ū	as in brūte	brūte
ǔ	as in full	tǔb
ui	as oui (French) we	ruin
v	as w	as in van
ȳ	as u in French pur	as in cȳpher
y	as in French du	as in cynical

continued page 83.

Botanical Names (Cont'd.)

Whichever system is adopted the word will sound best and be easier to listen to if a distinction is made between long and short vowel sounds and stress or accent be put in the place accepted as being classical Latin procedure.

Reference to standard dictionaries such as "Latin Dictionary" by C. T. Lewis and C. Short together with the works I have listed at the end of this article will help those who are interested. There are many problems to which it is hard to apply these rules as a very large number of generic names and quite a lot of specific epithets are based on other languages than Latin and Greek. As we have become increasingly aware in the last few years names of Polish, French, Dutch, Maltese etc., origin have pronunciations which to us appear to have little or no relationship to their spelling and it seems that where names of this sort appear we should pronounce them as near as possible to what is a normally accepted English pronunciation adding the normal Latin ending. For instance there is no doubt whatever that anyone of Polish extraction would pronounce Kosciusko in an entirely different way to what we are used to, but it is still easier on our ears to use the pronunciation that is normally accepted by English speaking people.

Usually the specific names that commemorate persons end in -ii or iae and this creates further difficulties if one sticks strictly to the rules which I mentioned earlier. For instance strict application to "cunninghamii" or "fordhamii" gives a pronunciation which to our ear has very little relation to the botanists whose names we normally pronounce as -Cun'-ning-ham or Ford'ham. Some move toward easing this particular problem has been made in latter years by the ruling that epithets like - bakeri - shall have only one - i and that in the possessive case the old spelling - bakeriana - should be changed to bakerana. For those who wish to study this problem further, I list the principal works that I have consulted in the preparation of this article.

The International Code of Botanical Nomenclature (1959)
Plant Taxonomy, Earl L. Core 1955
Botanical Latin, W. T. Stearn 1966
Royal Horticultural Society: Supplements to the Dictionary of Gardening 1956
Latin Dictionary, C. T. Lewis and C. Short

Eric G. Gordon, 263 Goulburn Street, Sydney. N.S.W.

WILLIAM HENRY NICHOLLS, 1885-1951

William Henry Nicholls was born on 23rd July 1885, the son of a school teacher; he received only secondary education at the Macarthur Street State School in Victoria, hardly sufficient to fit him for the work he was to commence in 1923 at the age of 38, "The Study of our Native Orchids." In his early life Nicholls was a book binder, but during the depression years of 1927-1933 he was in difficult straits and was obliged to abandon this for a position at Footscray Municipal Gardens, where he continued to be employed until his death. There he succeeded in raising unpromising cuttings with the most unorthodox methods and from them, many varied and beautiful Australian shrubs grew in Footscray Park to remain a living memorial to this great Australian. As his interest in orchids developed, he found it necessary to teach himself drawing and painting and sufficient Latin to enable him to carry out accurately the tasks he set himself; he wished to supplement R.D. FitzGerald's great work by depicting in their natural colours all the known species of Australian Orchids.

continued page 84.

William Henry Nicholls - 1885 - 1951 (Cont'd.)

The late Rev. H.M.R. Rupp wrote of these early times in the September 1951 Australian Orchid Review, when he said, "I frankly confess in those days his ambition appeared to me unlikely ever to be attained. His personal experience was limited to certain areas of Victoria; he was in comparatively poor circumstances and had little influential backing, and his education was elementary." As Nicholls enthusiasm grew however, no barrier was insurmountable and Rupp went on to confess "I badly underestimated the man."

This drive of Nicholls to undertake almost impossible tasks is well illustrated in a letter to Miss Isobel Bowden, with whom he conducted a regular correspondence. She wrote asking whether he was responsible for the 34 page article in the Sun Nature Book No. 5 "Gems of the Bush", written in 1934. Nicholls replies "Yes, I was responsible for the Orchid Section of "Gems of the Bush". I was given a week (spare time) in which to prepare same, also to make the colour plates, the cover Greenhoods and various flower types. I supplied also the plate of the Grandiflora". This was his masterpiece, containing 80 line drawings, 70 photographs and 4 plates in full colour. Although long out of print, this book is still sought after, and with modern methods of photography and copying many people are obtaining copies for their own use.

Nicholls wrote about one hundred articles for "The Victorian Naturalist", and for "Wild Life", the latter a fine publication now out of print. His articles covered a wide range of subjects, always showing his naturalists delight for the Australian country side; in an extract from "The Old Bush Huts", written in 1950, he returned to his first love, the native orchid, as he wrote:- "From Whitelaw Hut to Talbot Hut was only eight miles, but it was a full day's walk. We spent many days on Talbot Peak, roaming the morasses for the rarer floral treasures, especially the orchids. On one occasion we found a comparatively rare orchid flourishing literally in myriads in one of the steep valleys, but that was years ago and despite several additional visits to the locality at the approximate time of flowering, this orchid was never observed there again except as isolated specimens. What combination of special circumstances produced that amazing abundance in one odd year we could not tell."

Some of Nicholls most fascinating stories were written for Melbourne Newspapers about the Waterfalls of Victoria; he derived great pleasure from visiting them and taking photographs. Another of his works, "Wildflowers of Western Australia", which appeared in "Wild Life" in April 1948, accompanied by 18 of his superb photographs, is still looked upon as a most helpful guide to students even to this day.

His major work, dedicated to his wife "Orchids of Australia" has only been partially released - four volumes only. What a pity for the publishers not to complete this great work, illustrated in natural colours from the fresh specimens because Nicholls would not use dried material and accurately depicting our native orchids. It is to be hoped that one day many of us will have the pleasure of purchasing the remaining volumes to complete those now in our possession.

In 1927 Nicholls described a native orchid Diuris fastidiosa, and told the story of how no sooner had this unique species been discovered than a large heap of road metal was dumped on the spot, so that this species has vanished forever. In one of his letters to Miss Bowden, discussing the Diuris, he said "what difficult orchids they are." "D. Platichila was prominent among the specimens forwarded with variations, and I could only conclude that the darker hued ones were hybrids of D. Maculata."

Nicholls name is commemorated by a species of pygmy orchid, Prasophyllum nichollsianum Rupp from Woodford in New South Wales.

A further letter to Miss Bowden in September 1950 depicts this wonderful character spending nearly two months in bed with pneumonia and with a badly crushed left hand encased in plaster. However, with a spirit that was typical of the man he wrote. "These accidents have helped me to push the work of Drawing the orchids ahead". In January 1951 he stated that when he arrived home from hospital, the doctor had advised him that he had suffered sulpha poisoning from the Sulphanilamide tablets given for the pneumonia and although he could only manage one letter each day, he was still seeking specimens to complete his work.

Reverend Rupp's admiration for the drawings is best described in his own words. "As an artist he was self-taught. Yet, in my opinion, the outstanding merit of his Orchid paintings and drawings is their remarkable combination of the artistic sense with the scrupulous accuracy of the scientific botanist. He depicts his plants as they really are. Even FitzGerald now and then allowed the artist in him to over-rule the botanist; as when he gave us gracefully undulating stems which should really be quite straight. Nicholls never did this, yet his figures are always pleasing to the eye."

Nicholls never lived to see his great major work published; Volume 1 was in the hands of the printer at the time of his death, March 10th, 1951.

His picturesque writings, expert photography and paintings, manner of expressing himself in such modest terms as "In my opinion", a term much lacking these days, recall Rupp's words

continued page 85.

William Henry Nicholls (Cont'd.)

when he said "He has passed beyond our ken, but left an imperishable memorial of his genius and perserverance to orchidlovers the world over."

In writing a biography of a man of Nicholls calibre, who took up this scientific pursuit in the latter half of his life and yet achieved world recognition, one cannot help a feeling of personal friendship for him. One's respect for him increases with each article read by, or about him in the course of research.

Finally, I will use the last paragraph of Mr. J.H. Willis' Obituary to Nicholls, which read "Kind, unselfish, considerate and grateful to a fault, this natural "white" man has left the world more lustrous for his presence in it, and the wide circle of friends who mourn his passing has already sympathy for Mrs. Nicholls (herself the daughter of a veteran orchidologist, the late A.B. Braine) and his four married children. He was undoubtedly one of the three foremost figures in Australian orchidology this century (the other two being the Rev. H.M.R. Rupp and the late Dr. R.S. Rogers) and perhaps the greatest monographer of a major group in our flora since the time of Baron von Mueller. It is improbable that Victoria will ever know another orchid authority of the calibre of William Henry Nicholls".

Note of Acknowledgement.
It is suggested to readers that if this article has raised a desire for additional information, they should read Mr. J.H. Willis' Obituary which appeared in "Wild Life", May 1951 and the late Rev. H.M.R. Rupp's Memoriam in "Australian Orchid Review" of September 1951, from which the above information has mainly been taken. I also thank Miss I. Bowden for her help in lending to me her personal records, and permission to print extracts of letters for this article.

PTEROSTYLIS NANA R. Br.

B. Whitehead.

For many years the only recording of this orchid in N.S.W. was that reported in Rupp "Orchids of N.S.W." by Betche for Cobar. It appears that since one of the first recent sightings of the species by Mrs. J. Ingram in 1959 at Abercrombie Caves, the plant has been cropping up with a frequency which might be surprising in view of its earlier scarcity. Whether the reason for its appearance can be attributed to the decline of the rabbit population or an increase in collecting activity among enthusiasts, or a combination of both, is a point on which much could be said without any definite decision being reached.

The fact remains that in the last seven or eight years, the sightings of Pterostylis nana in N.S.W. are so numerous that it may well be taken off the "rare" list if this has not already been done, and be considered to be well established in this state. In recent years in the Central West alone, I have recorded this orchid from ten separate localities, and received at least five other reports of its occurrence. The westernmost of my recordings is a locality between Euabalong West and Mt. Hope (C.K. Ingram & B. Whitehead, Aug. 1964), about 340 miles west of Sydney. It is fairly certain that numerous other findings can or will be made in this area.

A striking feature of P. nana is that it occurs in a variety of situations, but most of these habitats have one feature in common, that being that they receive more moisture than accompanying areas in which orchids are to be found. Accordingly the plant may be looked for at the head, sides and in the bed of creeks and little watercourses which are damp in winter but in which no water is retained for long. These habitats are by no means the only ones, and rocky hillsides and tops will often harbour colonies of the plant where it will grow in association with P. revoluta, P. boormanii and others. It is worth noting that P. nana has been found here growing in a protected situation in flat, open Cypress Pine forest. As most of this type of country has long since been converted to farmland, it would be reasonable to assume that P. nana was once more common that it is now.

As a cultivated terrestrial the species is very satisfactory, despite the small flowers. Plants flower freely and multiply rapidly, necessitating annual repotting. Flowers on cultivated plants appear here from mid-June and reach a peak during August. Bush plants commence later but are usually at their best in August. The species does well in the usual sand-leaf mould mixture and needs moderate shade. Heavy shade produces plants with abnormally elongated flowering stems which are susceptible to frost damage.

B. Whitehead, Forbes.N.S.W.

SAPROPHYTIC ORCHIDS OF AUSTRALIA & NEW ZEALAND.

S.C. Clemesha.

Among the world's orchids, saprophytic species are well represented. Some genera have all their species as saprophytes while others have few, most, some, one or none.

Most of the Australian and New Zealand saprophytic orchids belong to genera that occur in Asia or are closely related to genera that occur there. Some of these genera extend as far away as Africa, Europe and America. Saprophytic orchids therefore are chiefly Asiatic in origin, but Prasophyllum flavum, Genoplesium baurei and Calochilus saprophyticus are true Australians. Rhizanthella and Cryptanthemis are not closely connected to any other genera but have more distant Asiatic allies. Some species are complete saprophytes which never produce any chlorophyll at all e.g. the Gastrodia spp. Galeola cassythoides and the subterranean species. Galeola foliata and Calochilus saprophyticus carry more chlorophyll than the other species and consequently must gain some of their food as do green plants.

Still others like Dipodium punctatum may or may not carry some, though not much chlorophyll

Saprophytic orchids grow from the tropics to much colder places such as England and Canada.

The term 'saprophyte' is applied to any plant or animal that gets its food from decaying vegetable or animal matter. They must not be confused with parasites which take their food from living animals or plants. If saprophytic orchids gained their food direct from the decaying vegetation their cultivation may be possible. However, saprophytic orchids get their food with the help of certain types of fungi which invade the living cells of the roots or rhizomes and carry into them food obtained from the surrounding soil. When a cell is full of fungus cells which have accumulated food material the orchid digests the fungus and absorbs the stored food. Most if not all orchids depend on fungi at the seedling stage and almost, if not all epiphytes' roots have fungus in them as does the portion of the stem between the tuber and the rosette as in Pterostylis. Throughout the world not one person has really successfully grown a saprophytic orchid. A few people may have been fortuante and lucky enough to plant one in soil that suits it and the chance of survival is remote. Sometimes Dipodium punctatum and Gastrodia sesamoides will flower the first and even sometimes the second year after transplanting but this is only because they carry a large amount of stored food. The writer knows of one case where Galeola foliata was grown from a stem cutting in a box full of sawdust sitting on sandy ground. It grew to six feet and flowered at least once but died when the grower neglected to top up the sawdust. Saprophytic orchids should not be removed from their habitat unless they are likely to be destroyed. If they are, they will simply live on their stored food till it is exhausted. The reason why this happens is the fungus balance is destroyed. One might ask why we can cultivate non saprophytic orchids which rely on fungus to grow? e.g. Pterostylis and epiphytes. In the writers opinion when a fungus invades the roots of a non saprophytic it quickly forms a relationship with the orchid and assists it, presumably in the absorption of water. The orchid in return provides it with sugars and starches which are made in its green parts. This way they both live together and assist each other to grow (a relationship of this nature is called symbiotic) and continual invasions of the root tissue are not necessary. In saprophytes the fungus invades the root tissue but is absorbed and digested when there is a considerable amount of food there. The only wait it can be replaced is from outside so continual invasions of the fugus are necessary. The non-saprophyte is therefore "completely self contained with its own fungus where the saprophyte is not. If the non-saprophyte is moved, or its associated fungus disappears from the nearby soil, the plant grows on with its own supply being cared for in its roots. The saprophyte on the other hand, must wait till the fungus reappears (as it doubtlessly does annually in many cases). This means the saprophyte's growing season depends completely on the fungus. If the fungus does reappear because soil conditions have changed (i.e. wood rotted past the desirable stage for the orchid) then the orchid will simply behave as if transplanted, live on its stored food till it is exhausted. This frequently happens and at least some saprophytes are short lived e.g. Galeola foliata. Gastrodia sesamoides and Dipodium punctatum which can live without their fungus for years before dying apparently are modified to survive a poor season when their fungus may not appear.

A point which must be remembered with saprophytic orchids is that their above ground organs are produced for but one reason - flowering and seed production. On years when these plants do not flower, nothing appears above the ground. Even the enormous branching stems of the Galeola species are nothing more than a series of flower racemes. A look at a plant of G. foliata will show that there is little provision for a new shoot to come, except from near ground level. At times saprophytic orchids are found in soil with little or no decaying vegetable matter. Despite this their associated fungus must be present in the soil. An extraordinarily high proportion of saprophytic orchids flower in summer when orchids tend to be scarce in many areas (highlands excluded).

If ever saprophytic orchids are to be cultivated then we must learn to cultivate their fungi first.

Continued Vol. 2. No. 7.

THE ORCHADIAN

APRIL, 1967. PRICE: 30 cents PAGE: 87
VOL. 2 No. 7

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: R.J. Curtis
Vice Presidents: J.H. Scott, R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDEN
STH. YARRA, S.E.1, VIC
31 MAY 1967

ANNUAL GENERAL MEETING - 9th, SEPTEMBER, 1967.

The Annual General Meeting of the Australasian Native Orchid Society will be held in roon 204, Y.W.C.A., Liverpool Street, Sydney, at 2.30 p.m. All members in Sydney on this date are asked to make every endeavour to attend.

ANNUAL ELECTIONS

Financial members are advised that the closing date for nominations will be 31st July, 1967. Post your nomination forms to John A. P. Blackmore, 25 Holden Street, Ashfield, N.S.W. Date of election will be 5th September, 1967 with all voting forms being posted to John Blackmore at the above address.

BACK ISSUES - THE ORCHADIAN

Back issues of The Orchadian will in future cost 40 cents each. This price increase has been forced upon your Council by the very ready sale of these issues necessitating reprints of all back copies. As these reprints are by necessity of small numbers when compared with the original printing they do cost your Society quite a deal more.
Bound copies of Vol. 1, No. 1 - 12 will continue to cost $6.60 as the cost of the reprints has been offset by new economies in the quantity binding of these volumes.

A CORRECTION TO THE ORCHADIAN, Vol. 2. No. 6.

Due to an error the author's name was omitted from the article titled "William Henry Nicholls", which appeared on page 83. The Editor takes the opportunity to apologise to Harold Jay, our hard working Hon. Secretary for the omission and trust that we may have the pleasure of another article from him.

JUDGING STANDARDS FOR NATIVE ORCHIDS

The Editor is indebted to Wal Upton for arranging permission from the Manly Orchid Society to publish the following new standard prepared by Wal and accepted at a Judging meeting of the society. This judging standard will be used in future Winter and Spring Shows of the Manly Orchid Society.

"BEST AUSTRALIAN NATIVE SPECIES OF BOTANICAL INTEREST

(Not to be judged on size or symmetry of form).

To be judged as a species, sub-species, variety or form of a species that would not necessarily be considered of good shape and size for horticultural or hybridising purposes, but is of good to above average form within its own species.

The species, sub-species etc., to be judged for purity of form within its species, sub-species etc., and to be compared with others within its class in as far as they compare within their own species, sub-species, etc., Not to be judged solely on size or symmetry of form.

continued page 88.

Judging Standards for Native Orchids (Cont'd.)

If more than one flower is normally produced all flowers are to be of even and comparable standard. If it is habit of species, sub-species, etc., to open progressively along the raceme then only fresh and open flowers to be judged.

Florescence, colour, shape, habit of spike, texture and size shall be judged on the optimum for each species, sub-species, etc., represented.

In the event of all flowers in the class being of equal standing within its own species, sub-species, etc., credit shall then be given for (a) difficulty of culture or (b) for rarity of plant or (c) the best general appearance (but not on the basis of symmetry or flower form)."

From this you will see that at last our smaller native orchids are to be recognised on the show bench of at least one Metropolitan Society, and this should induce its members to bring along natives that previously would not, under present native judging standards, have stood a chance against the larger native Dendrobiums, etc., and in turn let the public see more of the little known gems of our bush.

Well done Manly! I hope other society's soon follow your enlightened lead.

A REVIEW OF THE GENUS BULBOPHYLLUM Thou. IN AUSTRALIA. Part 1.

A.W. Dockrill

Bulbophyllum is the only genus in the subtribe Bulbophyllinae of the tribe Epidendreae. The species are epiphytic or lithophytic sympodial plants, each branch of the sympodium consisting of a very short to rather long section of prostrate orpendulous rhizome terminated by a swollen stem (pseudobulb) of a single internode which, in turn, is terminated by a solitary non-sheathing leaf. New branches of the sympodium commence from the base of the pseudobulb in front of the end of the rhizome of the previous branch and usually more or less in line with it so that the rhizome frequently appears to be continuous, and sometimes they commence from nodes of the rhizome as well. Pseudobulbs from very small to rather large, often embracing the rhizome. Leaves usually shortly petiolate, from vestigial to quite large, from very thick to very thin and from very slender to quite broad. Inflorescences arise from the base of the pseudobulbs or from nodes of the rhizome and may be short or long, solitary or few-flowered or flowers in racemes, near capitula, umbels, fans or circlets. Flowers minute to quite large. Dorsal sepal equal to or very much smaller than the lateral ones. Lateral sepals joined at their bases to form a mentum which is usually open in front, quite variable in shape and altitude on the flower, sometimes they are joined for varying distances and sometimes they are much larger than any of the other segments. Petals usually much smaller than the sepals but occasionally almost the same size. Labellum hinged to the apex of the column foot to be, usually, exceedingly mobile, sometimes of complex structure but usually rather simple, straight or curved, usually thick and more or less ligulate with lateral lobes not well developed but the sides usually raised at the base; the whole or part of the labellum sometimes warty or even hairy. Column short, usually with very pronounced more or less erect, horn-like teeth, one on either side at the anterior apex, which usually extends well above the small anther; foot usually curved forward away from the joined portion of the lateral sepals and then upcurved for a short distance to form a pedestal on which the labellum hinges. Anther 2 - celled. Pollinia waxy, without caudicles or stipe, 4 in two pairs, members of a pair more or less equal and sometimes more or less united.

This is one of the largest genera of orchids consisting of about 1,000 species ranging from tropical America to Africa and from Asia to Australia and even New Zealand. They are exceedingly numerous in Malaysia, Indonesia and New Guinea. Twenty one species are at present known to occur in Australia, fifteen of them in the eastern tropics where thirteen are indigenous, the other two extending to eastern New South Wales. The six non-tropical species occur in eastern New South Wales and southern Queensland.

This genus has been divided into numerous sections by Schlechter and others, but the difficulties of placing of some of the Australian species in their appropriate section are very pronounced being aggravated by language difficulties, lack of keys to sections and lack of illustrations of typical species of various sections accompanying their descriptions. Consequently the sectional names used here are not completely reliable and the student is advised to work to sectional numbers rather than names. The twenty one species have been placed in twelve sections, five of them un-named. It has not been possible to ascertain the exact number in, nor distribution of, many of the sections so that reference to these matters has been, for the most part, omitted.

Continued page 89.

A Review of the Genus Bulbophyllum Thou. In Australia. (Cont'd.)

KEY TO THE AUSTRALIAN SECTIONS OF BULBOPHYLLUM

Flowers at least two on an inflorescence; inflorescence at least twice as long as the pseudobulbs -

. flowers in neither a capitulum nor an umbel -

.. dorsal sepal about as long as the lateral sepals which are under 1 cm. long .... Section 1.

.. dorsal sepal less than half as long as the lateral sepals which are at least 1.5 cm. long .... Section 2.

. flowers in a capitulum .... Section 3.

. flowers in an umbel .... Section 4. (Cirrhopetalum)

Flowers solitary and peduncles not bunched -

. pseudobulbs at least 3 mm., spaced widely apart on the rhizome; lateral sepals at least 4 mm. long .... Section 5. (Micromonanthe)

. pseudobulbs under 3 mm. diam., spaced closely together along the rhizome; lateral sepals under 4 mm. long .... Section 6.

. pseudobulbs between 5 and 10 mm. diam., closely bunched together and often covered by woolly or fibrous bracts -

.. flowers not nodding, heavily blotched on all segments with reddish purple; dorsal sepal about as long as the lateral sepals; combined length of peduncle and pedicel usually no longer than the sepals; leaves under 3 cm long .... Section 7.

.. flowers nodding, a small amount of red on the lateral sepals only; dorsal sepal shorter than the lateral sepals; combined length of peduncle and pedicel at least four times as long as the lateral sepals; leaves over 5 cm. long .... Section 8. (Nematorhizis)

. pseudobulbs at least 1 cm. diam. and spaced well apart on the rhizome; leaves very large; flowers at least 3 cm. diam. and facing upwards .... Section 9. (Sestochilus)

. pseudobulbs 1.0 - 1.5 mm. diam.; leaves under 2.5 cm. long, thick, more or less prostrate and massed together to more or less obscure the pseudobulbs; flowers widely expanding, deep red; labellum tremulous.................... Section 10.

Flowers very small, usually solitary but the peduncles numerous, one or more small bunches of them arising from near the bases of, and almost obscured by, large bracts; leaves thick; pseudobulbs small, usually more or less cylindrical and truncate, semi-prostrate and more or less embracing the rhizome -

. sepals slender but rather thick and concave; mentum not pronounced; labellum may have ciliate margins but under surface not ciliate .... Section 11. (Sphaeracron)

. sepals broad and more or less flat; mentum pronounced; under surface of labellum ciliate.................... Section 12. (Fruticicola)

Continued page 90.

A Review Of The Genus Bulbophyllum Thou. In Australia Part 1. Section 1. (Cont'd.)

Bulbophyllum - Section 1.

Pseudobulbs usually spaced at least their own width apart but occasionally close together, less than 15 mm. long, conical, ovoid or depressed, longitudinally sulcate and sometimes rugose. Leaves from rather short and more or less ovate to elongated and more or less linear but always thin - coriaceous and shortly petiolate. Inflorescences few to rather many, peduncle at least twice as long as the pseudobulb, filiform. Flowers with a very pronounced mentum. Dorsal sepal at least a third as broad as long. Lateral sepals about the same length as the dorsal one but broader. Petals a little more than half the length of the lateral sepals and a about half their width. Labellum joined to the apex (pedestal) of the column foot by a short lorate claw, curved to varying degrees practically thoughout its length, more or less ligulate; lateral lobes occasionally present but, if present, they are very small and slender; sides erect near the base then curved to varying degrees; keels only occasionally present. Column with lateral wings as well as apical teeth. Pollinia very broad when viewed from the side. Five species in this section occur in Australia, four of them in the eastern tropics and three of these are confined to that region; the fifth species is confined to north-eastern New South Wales and south-eastern Queensland.

KEY TO THE AUSTRALIAN SPECIES OF SECTION 1.

Labellum with 2 converging keels on the disc and 2 longer, less prominent ones, one on the outside of each of the first two; flowers few; leaves rather long and very slender . . . . B. lageniforme - 1

Labellum without keels -

. labellum with thread-like lateral lobes and a few short cilia on the margins; part of the disc of the labellum shortly ciliate or papillose. . . B. newportii - 2

. labellum neither ciliate, papillose nor with lateral lobes -

.. flowers in a dense raceme, heavily blotched with purple; labellum very thick; pseudobulbs close together . . . . B. bracteatum - 3

.. flowers neither in a dense raceme nor heavily blotched with purple; pseudobulbs usually not close together -

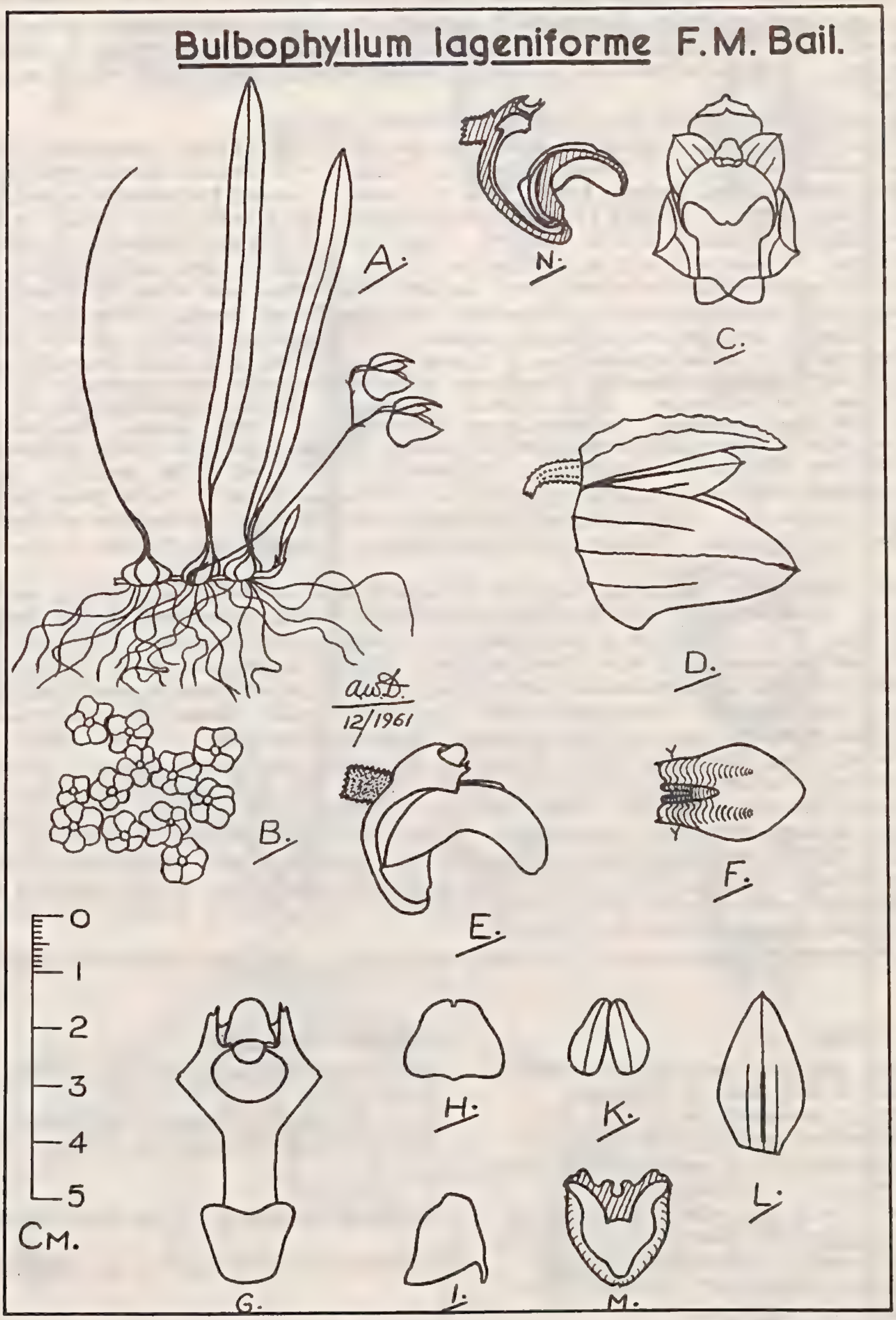
... nerves of sepals and ovary glandular - dotted; dorsal sepal cucullate; labellum not constricted to a narrow distal half; margins of labellum rolled . . . . B. lilianae - 4

... nerves of sepals not glandular - dotted; dorsal sepal not cucullate; labellum constricted to a narrow distal half. . . . . B. exiguum - 5

SECTION 1.

1. Bulbophyllum lageniforme F.M. Bail., Qld. Agri. Journ. 15:1 (July 1909); Rupp & T.E. Hunt, Proc. Roy. Soc. Qld. 50, Pt.6:61, Pl.2 (Dec. 1949); Dockr., Orchadian 2, No.3:39 - 40 (June 1966). Synonym: Bulbophyllum adenocarpum Schltr., Fedde Repert. 8:568 (1910). Plant epiphytic or lithophytic, growing into small clumps. Rhizome averaging slightly less than 1mm. diam. and usually 1-2 internodes between pseudobulbs. Pseudobulbs rather closely placed, usually more or less erect but sometimes oblique, 5 - 10 x 5 - 10 mm., usually depressed ovoid or almost flat but sometimes more or less conical, deeply rhizome-embracing, usually rather deeply sulcate. Leaf more or less erect, 4 - 10 x 0.4 - 0.8 cm., linear. Inflorescence 4 - 7 cm. long, usually 2 flowered but varying from 1 to 4; pedicel plus ovary 7 - 10 mm. long, the ovary tuberculate. Flowers more or less bell-shaped, averaging about 8 mm. long, usually pale green with brown veins, but sometimes cream or rarely pale pink, sepals and petals 3 - nerved, the nerves of the sepals indistinctly and sparsely tuberculate or rugose. Dorsal sepal 7 - 8.5 x 2.5 - 3 mm., more or less oblong - ovate, rather deeply cucullate. Lateral sepals usually slightly longer than the dorsal one and 5 - 6 mm. broad at the mentum, more or less ovate. Petals 5 - 6 x about 2 mm., oblong - ovate, apiculate. Labellum about 6 x 3.5 mm., curved through about 180°, oblong - ovate when viewed from above; sides erect near the base only, the remainder decurved through about 90°; disc with two keels which converge and unite at about the middle and there are also two less prominent, sometimes quite obscure, keels, one on either side of the main pair, which extend much nearer to the apex.

continued Vol. 2. No. 8.



BULBOPHYLLUM LAGENIFORME – Key to Plate

A. Portion of plant .... to indicate scale.
B. Small cluster of pseudobulbs to indicate scale.
C. Flower from the front .... to scale X5.
D. Flower from the side .... to scale X5.
E. Labellum and column from the side to scale X5.
F. Labellum from above .... to scale X5.
G. Column from the front ....to scale X10.
H. Anther from above ....to scale X20.
I. Anther from the side .... to scale X20.
K. Pollinia from the front .... to scale X20.
L. Petal .... to scale X5.
M. Cross section of labellum at Y-Y to scale X10.
N. Longitudinal section of column & Labellum .... to scale X4.

A NEW SPECIES OF SARCOCHILUS FROM NORTH QUEENSLAND

S. C. Clemesha

In this paper *Sarcochilus ceciliae* F. Muell. subspecies roseus Clemesha is described as a new subspecies and a comparison is made between the latter and *S. ceciliae* F. Muell. subspecies *ceciliae.* This is followed by a discussion of its affinities and genetic dominance in hybridisation.

Sarcochilus ceciliae F. Muell. ssp. *roseus* Clemesha *ssp. nov.*

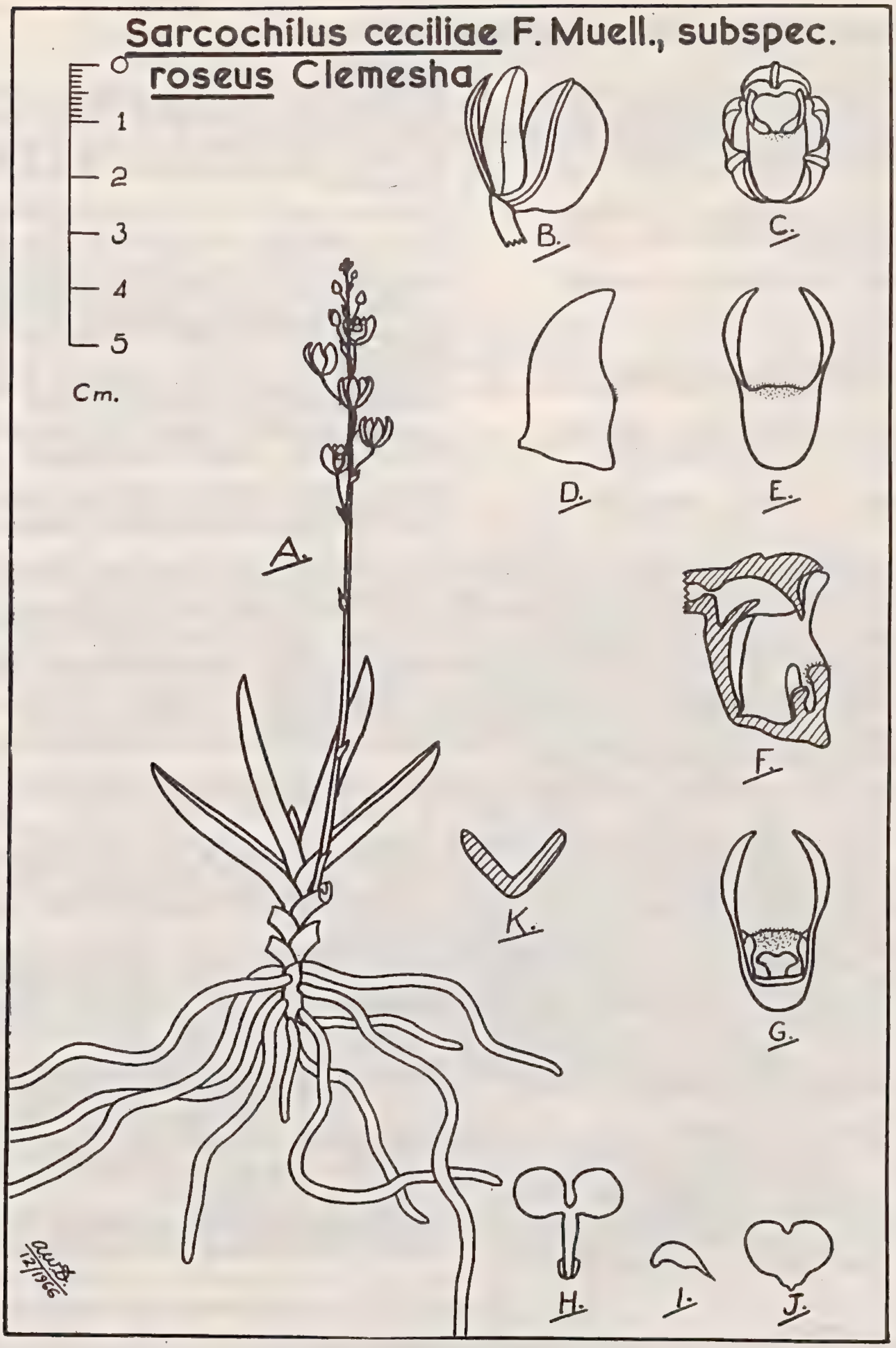
Planta parvae, lithophytae, singulatim aut binae tertiaque aggregatae crescentes. Caulis brevissimus; radices paucae, 3.5 mm. crassae. Folia 4 - 8, canaliculata, cymbiforma, erecta, immaculata, 6 cm. longa, 4 mm. lata et 2 mm. crassa. Racemus erectus, bracteis 2 - 4 parvis et apiculatis. Flores 10 - 20, campanulati, laete rosei, 6 - 7 mm. lati. Sepalum dorsale oblongum, 5.5 mm. longum, 3 mm. latum. Sepala lateralia similaria sed parum parviora. Petala fere erecta et dilatata, 5 mm. longa, 1 mm. lata. Labellum 4 mm. longum et trans partem dilatissimam 3 mm. latum, trilobatum sed lobus intermedius sine parte libera. Lobi laterales erecti, posteriore margine 3 mm. longa. Pars libra 1.5 mm. longa, basi oblongo, descrescens et supra falcata. Pars interior glabra, nervis rubris prominentibus tecta. Lobus intermedius 2.2 mm. longus, connatus lobis lateralibus per totam longitudinem. Margo superior transversi et in centro paulo emarginati. Discus paulo pubescens et tricalliatus. Calli clavati, conspicui. Callus medianus major, bilobus et inferior quam duo laterales. Colmna 2mm. alta pede ca. 2 mm. longo. Stigma parvum, oblongum, ovatum; pileus antherae antice apiculatus. Massae pollinis paene globosae. Holotype: Concord West (cultivated), S.C. Clemesha, 11-12-1966 (NSW 84627). This plant was originally obtained by J.E. Jones about 1957 near Tinaroo Falls Dam, Queensland, where it grew on granite. The holotype is located in the National Herbarium of New South Wales, Sydney, Australia. Flowering (in cultivation in Sydney) late October to December at least.

Plants small, lithophytic, growing singly or in tufts of 2 or 3. Stem very short, roots few 3.5mm. thick. Leaves 4 - 8, canaliculate, cymbiform, erect, unspotted, 6 cm. long, 4 mm. broad and 2 mm. thick. Raceme erect, bracts 2 - 4 small and apiculate. Flowers 10 - 20, campanulate, bright rose pink, 6 - 7 mm. across. Dorsal sepal oblong, 5.5 mm. long, 3 mm. broad. Lateral sepals similar but slightly smaller, petals nearly erect and dilating, 5 mm. long, 1 mm. broad. Labellum 4 mm. long, and 3 mm. across the widest part, trilobate but the mid-lobe with no free portion. Lateral lobes erect, 3 mm. long. Free portion 1.5 mm. long, oblong at base, becoming narrower and falcate above. Inside glabrous, ornamented with prominent red veins. Mid - lobe 2.2 mm. long, connate with lateral lobes for its entire length. Upper margin transverse and slightly emarginate in the centre, Disc slightly pubescent, tricalliate. Calli club - shaped and conspicuous. Middle callus larger, bilobed and lower than the lateral two. Column 2 mm. high with a 2 mm. foot. Stigma small, oblong, ovate; anther cap anteriorly apiculate. Pollen masses almost round. The name refers to the colour of the flowers. This point is quite consistent in all specimens of the plant known to the author.

S. ceciliae subspecies *roseus* can be distinguished from *S. ceciliae* subspecies *ceciliae* as follows.

subspecies *roseus*	subspecies *ceciliae*
Plant growing singly or forming tufts of 2 or 3 if the centre of the plant is damaged.	Plant forming large colonies within a few years.
Leaves shorter, broader and thicker than those of subspecies *ceciliae* and unspotted.	Leaves bearing conspicuous raised warty spots except when grown in heavy shade.
Flowering commencing 3 weeks earlier (when grown side by side in cultivation).	
Raceme erect and more robust than that of subspecies *ceciliae* and bearing 2 - 4 bracts.	Raceme bearing 4 - 9 or oven more bracts.
Flowers not glandular exteriorly, larger, thicker textured and deeper coloured than those of subspecies *ceciliae*.	Flowers inconspicuously glandular exteriorly.
Dorsal sepal oblong.	Dorsal sepal oblong lanceolate. Petals 3 mm. broad.
Petals 1.8 mm. broad, and more erect and spreading than those of subspecies *ceciliae.*	

Continued page 94



SARCOCHILUS CECILIAE SUBSPEC ROSEUS – Key to Plate

A. Plant ....to indicate scale.
B. Flower from the side .... to scale X5.
C. Flower from the front .... to scale X5.
D. Labellum from the side .... to scale X7.
E. Labellum from the front .... to scale X7.
F. Median Longitudinal Section of column & Labellum .... to scale X7.
G. Labellum from the rear .... to scale X7.
H. Pollinarium from the front .... to scale X15
I. Anther from the side .... to scale X10
J. Anther from above .... to scale X10
K. Cross section of leaf .... to scale X3

A New Species of Sarcochilus From North Queensland (Cont'd.)

Labellum.	Labellum.
Lateral lobes (exteriorly) oblong at base and becoming narrower and falcate above. Free portion 1.5 mm. long, interior conspicuously veined with red and not pubescent.	Similar at base but only slightly and evenly tapered and with an obtuse point. Free portion 4 mm. long, interior white, either devoid of veins or bearing few and finely pubescent.
Mid-lobe slightly emarginate in centre, connate with the lateral lobes for its entire length and triangular.	Mid-lobe round on upper margin with the highest portion in the centre, free for almost its entire length and broad spathulate.
Disc prominently tricalliate and slightly pubescent.	Disc calli much smaller than those of subspecies roseus, frequently barely visible and not properly formed. Disc densely pubescent.
Column 2 mm. high, Stigma oblong ovate.	Column 1.5 mm. high. Stigma broadly oblong below and acuminate above.
Anther cap with a membranous apiculate point less than 0.5 mm. long on the anterior.	Anther cap with a fleshy rod-like projection almost 1 mm. long on the anterior.
Flowers always a uniform shade of deep rose pink.	Flowers from white to pink but never as deep as those of subspecies roseus.

All the differences described above are quite stable in 4 clones of subspecies roseus that were examined and at least 30 clones of ssp. ceciliae that were examined.

Two clones of subspecies roseus studied by the author had unusually broad mid-lobes to their labella. This gave the appearance of this portion of the flower being united with the lateral lobes but more careful examination showed this not to be the case and they were in fact free for just as great a portion as were the clones with narrower mid-lobes. The calli development in subspecies ceciliae proved variable but never approached that of subspecies roseus and while these were inconspicuous they always were present and visible to the naked eye.

The new subspecies is unique in the genus in having no free portion to the labellum though this departure is not a great one as the free portion is very small in all species of the genus (particularly in Sarcochilus falcatus R.Br. the type species of the genus). The structure of the mid-lobe of the labellum of the new sub-species is much closer to that of S. hillii (F. Muell.) F. Muell., and S. tricalliatus (Rupp) Rupp, than to S. ceciliae subspecies ceciliae though it differs from them in numerous points, as do the other parts of the flower, and the habit of the plant.

Though the 2 subspecies differ considerably, they look like forms of the same species when looked at rather casually and the author is therefore of the opinion that the treatment of the plant as a subspecies is most satisfactory. An excellent illustration of the new subspecies accompanies this description by kind permission of A.W. Dockrill and will be seen in his coming "Review Of The Subtribe Sacanthinae In Australia and New Zealand".

Sarcochilus ceciliae ssp. roseus has been used to make artificial hybrids in Sydney by Mr. Ira Butler of Wahroonga, N.S.W. Two hybrids have reached flowering size, these being the new ssp. roseus X S. falcatus and the new subspecies roseus X S. hartmannii. In both plants the erect habit and reluctance to increase vegetatively of subspecies roseus predominates. The beautiful deep rose pink colour of ssp. roseus predominates in the second mentioned hybrid while it only appears as tints in the first hybrid.

S. ceciliae ssp. roseus is a much hardier plant than S. ceciliae ssp. ceciliae as it is better able to survive extremes of water supply and is much more resistant to the rot that freqently destroys the latter plant in cultivation.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

A NOTE ON THE POLLINATION OF CALADENIA ALBA R. Br.

P.J. Uhlherr

A fly in the act of pollinating Caladenia alba R. Br. was captured and submitted to the Australian Museum for identification. It was found to be a female fly of the genus Syrphus (family Syrphidae). Mr. G.A. Holloway, who identified the fly, wrote: "No work at all has been done on the Australian Syrphidae since G.H. Hardy's work in 1934. Details of

continued page 95.

A Note on the Pollination of Caladenia Alba R. Br. (Cont'd.)

distribution are not available, however the genus appears to be quite common around the Sydney area. This may be due to the fact that little collecting has been carried out on Syrphus sp. in other areas". The following observations were made in September, 1966, at Menai, near Sydney. The fly was found with the back of its body pressed against the column of the flower owing to its own weight on the labellum having tilted this towards the column. The fly's head was at the base of the labellum, its body fitting neatly between the labellum side lobes. As the fly crawled backwards up the labellum, the centre of gravity was moved forward of the labellum hinge, tipping the labellum into its open position and thus allowing the insect to escape.

Continued Vol. 2 No. 8.

ORCHIDS OF THE WHITEBRIDGE DISTRICT

Greg Slater.

I shall explain for the benefit of those who don't know, where and what Whitebridge is. Whitebridge is a small township of about 2,000 in population. By road it is situated about 8 miles south of Newcastle N.S.W. and approximately three quarters of a mile from the sea. Whitebridge is completely surrounded by fairly heavy timber providing an almost ideal environment for terrestrial orchid growth.

Ever since I started to grow orchids at the age of fifteen, some three years ago, terrestrial orchids have held an obsessive fascination for me. So, I shall endeavour to describe some of the orchids and their environs in this district.

By far the most abundant orchid in this area is Caladenia alba which grows in a wide variety of soils; from hard rocky clay through rich loam to thick moss. Other Caladenia spp. such as C. carnea and C. testacea grow in great profusion but not in so great a number. A wide variety of the bizarre but beautiful Pterostylis grow here in large colonies. The especially beautiful P. grandiflora was discovered by my distinguished colleague Neil Kilgour. He fell over and while he was admiring the scenery from ground level he noticed a very chewed, but identifiable P. grandiflora. The frantic search that ensued revealed, theoretically, thousands of these magnificent plants growing on the western side of a well watered gulley. I have also noted P. obtusa, P. pedunculata, P. longifolia, P. curta and P. nutans thriving in moss 2" thick on the bank of a stream that plunges over a cliff some 500 yards away. On the cliff faces adjacent to this intermittant waterfall Dendrobium linguiforme and D. striolatum grow in small quantities. Some distance away in a blackberry thicket is a colony of P. baptistii living in complete harmony with a black snake (Pseudechis porphyriacus) of considerable size.

Thus there is at least one patch of P. baptistii destined to survive for some time to come. The unique Calochilus robertsonii can be found growing quite happily in broken down sandstone in an area locally known as the "clay pit" (a highly eroded hillside adjacent to a very decayed and usused railway cutting). The Calochilus is found to be intermingled with Thelymitra irregularis, Spiranthes sinensis, Microtis unifolia and one unnamed Pterosylis. Diuris sulphurea grows in huge colonies in the Whitebridge graveyard along with a few isolated Prasophyllums while two miniatures, Spiranthes sinensis and Microtis unifolia survive in a less melancholy surrounding - on the bank of a stream about 200 yards outside the graveyard fence. On the extreme southern boundaries of Whitebridge there is a small valley and on the western wall of this valley the magnificent Dendrobium speciosum once grew, but due to a few thoughtless and rapacious thugs it is now extinct. Close by Bulbophyllum crassulifolium grows in considerable quantities.

At the northern end of Dudley Beach (Army map No. 396 zone 8 calls it Little Red Head) there is a small intermittant stream, about 500 yards up this stream is a small, flat, cleared space about nine square feet in area. In this small area I recorded the following orchids; Acianthus caudatus, A. reniformis, Pterostylis curta, P. longifolia, P. grandiflora along with Glossodia minor, Lyperanthus suaveolens and Thelymitra ixioides. As I was making my way home I came across a tremendous quantity of Cymbidium suave. Practically every second tree I looked at had a medium to extra large specimen of this beautiful orchid. One of which especially sticks in my mind. On the opposite side of a creek was an exceptionally large (to my way of thinking) plant of C. suave. It over-hung the creek (as the tree had a slight inclination) at a height of about 20 feet. It was about two and a half feet in diameter (the C. suave) and in full bloom. One could see only about 4" of green leaf at the top as the remainder of the plant was hidden by an estimated 250 flower spikes. As it was a rather hot day the air was filled with the orchid's heavy perfume.

In conclusion I shall say a few words about the orchids that can be found at Glenrock Lagoon.

Continued page 96.

Orchids of the Whitebridge District (Cont'd.)

This lagoon is situated approximately one and a half miles north of Whitebridge. Although it is essentially semi-rainforest, Glenrock is not endowed with as many orchids as one would expect. There are only about eleven orchids.

My colleague Neil Kilgour found the first orchid on our first expedition into this area. His discovery was a microscopic seedling of Thrisxpermum tridentatum.

To round off I have compiled a list of all the orchids which have been recorded up to date, (January 1967) in the Whitebridge district.

Acianthus caudatus, A. fornicatus, A. reniformis, Bulbophyllum crassulifolium, B. exiguum. Caladenia alba, C. carnea, C. testacea. Calochilus robertsonii. Caleana major. Chiloglottis reflexa. Corybas aconitiflorus. Cryptostylis erecta, C. subulata. Cymbidium suave. Dendrobium aemulum, D. linguiforme, D. speciosum, D. striolatum. Dipodium punctatum. Diuris punctata, D. suplhurea. Galeola cassythoides. Glossodia minor. Liparis reflexa. Lyperanthus suaveolens (brown & red forms). Microtis unifolia. Prasophyllum spp. Pterostylis baptistii, P. curta, P. grandiflora, P. longifolia, P. nutans, P. obtusa, P. pedoglossa. Spiranthes sinensis. Thelymitra irregularis, T. ixioides. Thrixspermum tridentatum.

Greg Slater, 42 Hudson Street, Whitebridge. N.S.W.

OBSERVATIONS ON SOME NATIVE ORCHIDS OF THE CENTRAL WESTERN SLOPES AREA OF N.S.W.

W. T. Upton

October and November are probably the most prolific flowering months for the native orchids of the Central Western Slopes area of New South Wales, so with this thought in mind, Eric Gordon, Murray Corrigan and I set forth on Friday afternoon 21st October, 1966 for Cowra, the first leg of what turned out to be a most enjoyable week-end.

On Saturday we started the day well by finding Diuris colemanae before 8.30 a.m. It was a solitary plant growing right beside the road, not far from Cowra. It was growing in a very heavy soil and almost smothered by the grass around it. The plant was quite small, about 15 cm. high but the flower was quite typical with its long lateral sepals and its beautiful pale orange petals and dorsal sepal and purple markings on the labellum. We met Brian Whitehead, who was to be our guide for the day, at Gooloogong at 10.15 a.m. and he was most envious on discovering we had seen D. colemanae when he had been looking for it in this area for about 7 years without success. It would appear to be a new recording for this area.

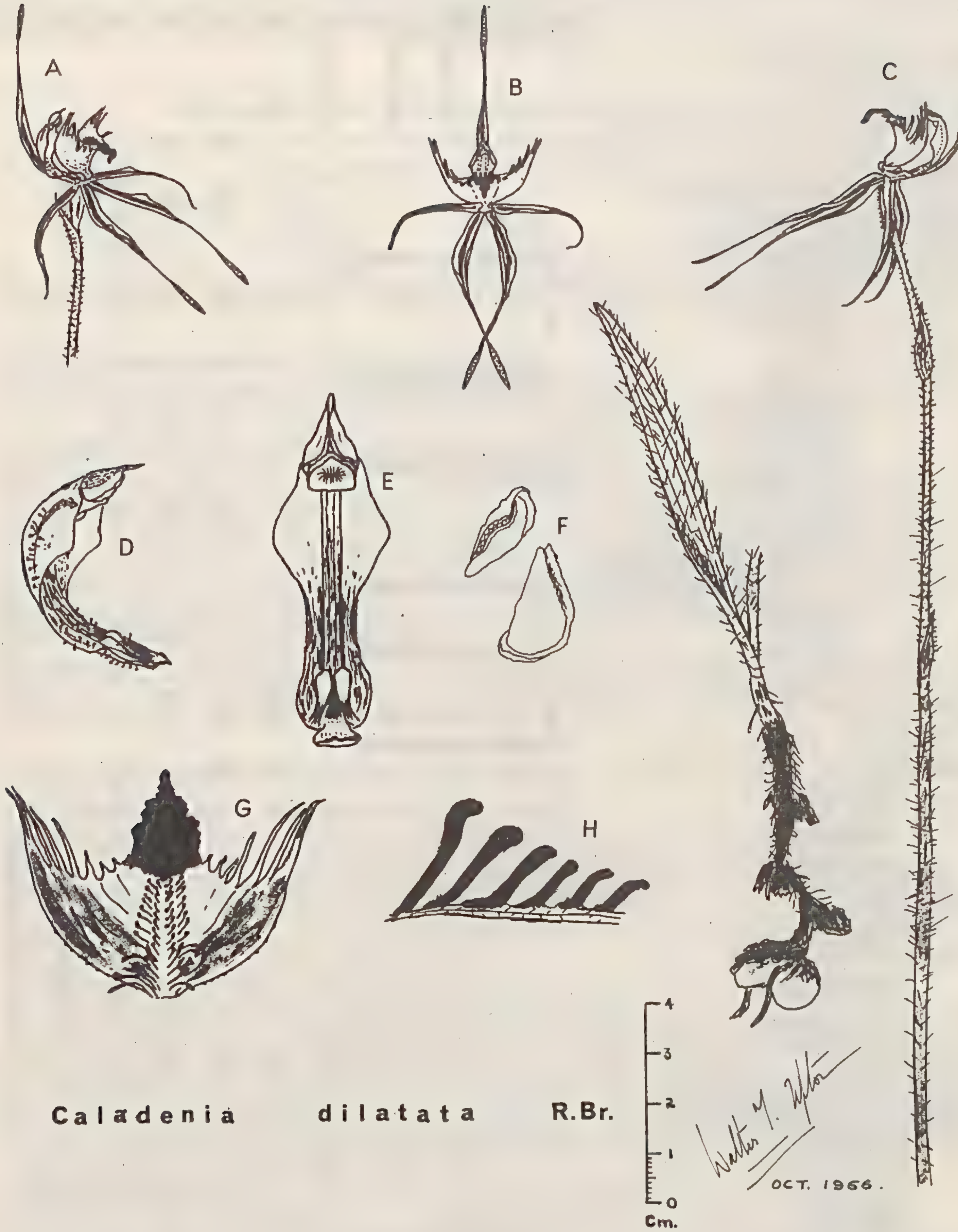
Brian took us to an area called the "Kangarooby's" which is to the S.W. of Gooloogong, and is a range of gently undulating, lightly timbered hills between 1,000 and 2,000 odd feet above sea level, but beset with very hard rocky outcrops, freqnelty covered with various species of Lichens. The White Cypress Pine (Callitris glauca) is very abundant, particularly on the ridges, also many species of Acacia. There is a great abundance of native plants, far too many to mention. The following are the native orchids seen, with a few brief notes.

Corybas diemenicus was seen in one area only, this was at the foot of a hill, in a damp place where the rocks were covered with moss. It was on the south west side of the hill, mainly away from the sun, except in the early morning. Numerous colonies were observed, no plants were in flower, but were easily distinguishable from the Acianthus species growing with it, by their large, heavy textured, and extremely glossy prostrate leaves. Numerous Pterostylis rosettes were seen nearby. Brian Whitehead said P. alata was found in the vicinity.

Caladenia dilatata is one of the most common of the native orchids seen in this area, and one of the most beautiful of the genus in New South Wales. It was growing in various situations, but mainly on the south and south westerly side of the hills, in lightly timbered and grassy areas. The colonies were generally widespread and seldom were more than six flowering plants seen growing close together. The drawing is of a plant collected, and it is interesting to note that in this particular plant the rhizome has elongated each year, the old collapsed tubers being clearly seen, with the newly formed tuber at the bottom. This species was quite constant in shape and colour, although the size of the flowers varied, the one drawn being about average. The perianth segments are a creamy-green with maroon striate markings, the attractive labellum has lime green side lobes and a very dark maroon mid-lobe. The club shaped calli on the lamina of the labellum are also dark purple.

Caladenia cucullata was seen in numerous areas and one colony growing on the flat was widespread but quite large. Its perianth segments had a creamy pink interior, brownish exterior, and a contrasting acute purple tip to the labellum.

Continued Vol. 2. No. 8.



Caladenia dilatata R.Br.

OCT. 1966.

CALADENIA DILATATA – Key to Plate

A.	Flower from side	2/3X.
B.	Flower from front	2/3X.
C.	Plant	2/3X.
D.	Column from side	2X.
E.	Column from front	2X
F.	Pollinia greatly enlarged	
G.	Labellum from above pressed flat	2X
H.	Calli on labellum greatly enlarged.	

THE FLOWERING PERIODS OF AUSTRALIAN AND NEW ZEALAND ORCHIDS - SECTION 2. QUEENSLAND.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Acianthus amplexicaulis			X	X	X							
exsertus			X	X	X							
fornicatus			X	X	X	X						
ledwardii			X	X	X							
reniformis							X	X				
Acriopsis javanica												
var. nelsoniana							X	X	X	X		
Anoectochilus yatesae							X	X	X			
Aphyllorchis queenslandica					X					X		
Bulbophyllum aurantiacum	Almost any month											
baileyi	X									X	X	X
bowkettae				X	X	X	X	X	X			
clavigerum	X											
elisae										X		
evasum	Almost any month											
exiguum		X	X	X								
gadgarense							X	X	X			
globulforme					X							
johnsonii	Almost any month											
lageniforme	X										X	X
lilianae							X	X	X			
macphersonii												
var. machpersonii		X	X									
var. spathulatum	Almost any month											
nematopodum										X	X	
newportii									X	X	X	X
radicans	Almost any month											
wadsworthii									X	X	X	
Bromheadia venusta						X	X	X				
Cadetia hispida	X	X	X	X	X	X	X					
taylori	Almost any month											
Caladenia alba						X	X					
caerulea								X	X			
carnea								X	X			
dilatata										X	X	
patersonii										X	X	
Calanthe triplicata	X									X	X	X
Caleana major	X									X	X	X
minor	X									X	X	X
Calochilus gracillimus									X	X	X	
grandiflorus									X	X		
paludosus								X	X	X	X	
robertsonii								X	X	X	X	
Camarotis keffordii			X	X	X							
Cheirostylis ovata						X	X	X	X			
Chiloglottis reflexa	X	X										X
Chiloschista phyllorhiza											X	X
Corybas abellianus		X	X	X	X							
aconitiflorus			X	X	X							
fimbriatus				X	X							
fordhamii							X	X				
undulatus					X	X						
Corymborkis veratrifolia	Almost any month											
Cryptostylis erecta								X	X			
subulata								X	X	X		
Cymbidium canaliculatum									X	X		
madidum												
var. madidum								X	X	X		
var. leroyi											X	X

continued Vol. 2. No. 8.

THE ORCHADIAN

JUNE, 1967 PRICE: 30 cents PAGE: 99
VOL. 2 No. 8

Published by The Australasian Native Orchid Society

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDEN
STH. YARRA, S.E.1, VIC.
11 JUL 1967

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: R.J. Curtis
Vice Presidents: J.H. Scott, R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

ANNUAL GENERAL MEETING - 9TH SEPTEMBER, 1967.

The Annual General Meeting of the Australasian Native Orchid Society will be held in room 204, Y.W.C.A., Liverpool Street, Sydney, at 2.30 pm. All members should endeavour to attend.

PROCEEDINGS OF THE FIFTH WORLD ORCHID CONFERENCE.

Members will recall that Dr. K. Kirkland read a paper titled "The Orchids of Australia" on behalf of the Australasian Native Orchid Society at the 5th World Orchid Conference and that the text of this paper was published in The Orchadian, Vol. 2. No. 6. pp. 78 - 81. The paper was an abridged version prepared to comply with the 30 minute limit imposed on all speakers. The full paper has now been published in the Proceedings of the 5th World Orchid Conference and comprises 30 pages. I urge all members to obtain a copy of this limited edition which is a truly magnificent volume, by far the best record of the proceedings yet. The full paper was prepared by A.W. Dockrill, W.T. Upton, S.C. Clemesha, L. Cady and J.A.P. Blackmore with Eric Gordon acting as Chairman and Editor. Editing of 35 mm. colour slides and abridged text presented at the conference was by Keith Kirkland, Eric Gordon & Murray Corrigan.

Proceedings of the 5th World Orchid Conference, Edited by Lloyd R. De Garmo and published for Fifth World Orchid Conference Inc., pp. 328, with numerous B & W and colour prints, 11¼" x 8¾", cloth, U.S.A. $8.95. Available from American Orchid Society Inc. Botanical Museum - Harvard University, Cambridge, Massachusetts 02138. U.S.A.

SAPROPHYTIC ORCHIDS OF AUSTRALIA & NEW ZEALAND. continued from Vol. 2. No. 7.

S.C. Clemesha

THE GENERA DIPODIUM, GALEOLA AND THEIR ALLIES.

The genus *Dipodium* is interesting as it contains leafy epiphytes, non saprophyties, leafy non saprophytic terrestrials and saprophytic terrestrials. It extends from at least Malaya to Australia and New Caledonia. The two epiphytic Malayan-Indonesian species of the genus have long climbing stems which branch irregularly as do *Vanda* and *Sarcochilus* spp. They also produce aerial roots like the above mentioned genera.

Dipodium parviflorum J.J.S. (name meaning small flowered) from Java-Malaya and *D. pictum* (Lindl.) Rchb. f. (name meaning painted) from Java, Sumatra and Malaya - both from lowland and mountain areas, represent this interesting group.

D. paludosum (Griff.) Rchb.f. (name meaning swamp dwelling) grows as a tufted terrestrial in Borneo, Sumatra and Malaya, often in sandy places near the coast.

D. ensifolium F. Muell., Fragm. 5(1865) (name meaning, with sword-like leaves) has a similar habit to *D. paludosum* but becomes very straggly unless burnt off by bush fires, which cause it to flower more freely. All of the above mentioned beautiful orchids can be cultivated, but are tropical. *D. ensifolium* will grow in an unheated glasshouse in Sydney. The genus *Dipodium* is very closely allied to Cymbidium and if pollen of the native Cymbidiums is put on *Dipodium punctatum* or *D. ensifolium* (*D. hamiltonianum* has never been attempted to the writer's knowledge) seed capsules will form. Similarly cultivatable non saprophytic plants may be produced by crossing *D. ensifolium* with the two harder growing, more cold tolerant saprophytes. If *Dipodium* pollen is put on our native *Cymbidiums* seed capsules do not form.

Dipodium punctatum (Sm.) R. Br. Prodr., 331 (1810) is by far the best known and most common saprophytic orchid in Australia will be familiar to most members and many, including the writer, will be able to recall their unsuccessful attempts to grow it. It has a large fleshy root system. The roots are quite thick, while the leaves on the rather slender stem are reduced to a few scale-like bracts. These leaves may be entirely subterranean or the upper ones may be visible above ground. When they are above ground they may or may not be green. However, they are so small that even when green, any food they manufacture is such a small portion of the plants requirements that it is insignificant. *Dipodium punctatum* flowers at about Christmas time and its attractive hyacinth-like flowers, which are born on stems, about three feet high, vary greatly in colour from pale pink to deep red either as a uniform colour or as spots or blotches on a pale background. This orchid whose name means spotted, grows in a very wide variety of soils - from almost pure sand to gravel and clay and from sea level to 4,000 feet or more and from cold parts of Tasmania, Victoria & New South Wales to the warmer parts of Queensland (including the tropical north). It grows from well watered areas to semi arid areas, but avoids swampy places.

Continued Vol. 2. No. 9

A Review Of The Genus Bulbophyllum Thou. In Australia. Part 1. Section 1. cont. A. W. Dockrill.

Column about 2.5 - 3 mm. long with a foot about 4 - 5 mm. long; lateral wings broad deltoid but emarginate; apical teeth shortly bifid, extending not quite as high as the anther.
Flowering period:- November to January.
Distribution:- south-eastern Cape York Peninsula, from the Johnston River to the Big Tableland, seldom at altitudes below 2,500 feet.

SECTION 1.

2. Bulbophyllum newportii (F.M. Bail.) Rolfe, Orch. Rev. 17:94 (1909); Figured T.E. Hunt, Proc. Roy. Soc. Qld. 60, Pt.6: t.7, fig. 1 (Dec. 1949); Dockr., Orchadian 2, No. 3:41 - 43 (June 1966); Clemesha & Dockr., Orchadian 2, No. 5:70 & 72 (Sept. 1966).
Sarcochilus newportii F.M. Bail., Qld. Flor. 6:2014 (1902).
Bulbophyllum trilobum Schltr. in Fedde, Repert. 8:455 (1910).
Bulbophyllum wilkianum T.E. Hunt, Nth. Qld. Nat. 14, No. 82:17 (March 1947).
Bulbophyllum wanjurum T.E. Hunt, ibidem p. 18.

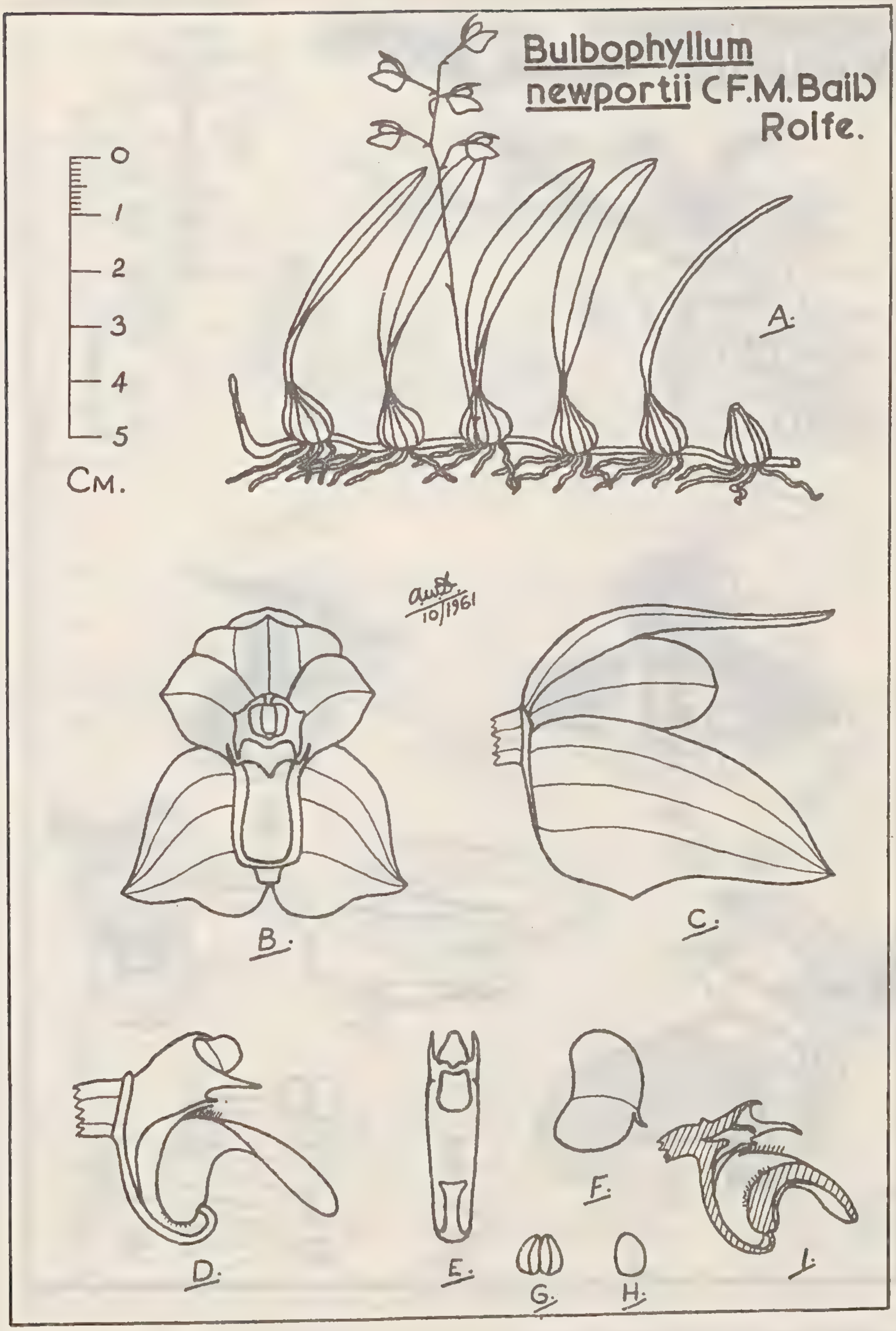
Like the preceeding species, B. newportii is extremely variable and this has lead to considerable mis-identification and the describing of synonyms.
Plants lithophytic or epiphytic, growing into large masses. Rhizomes averaging about 1 mm. diam. and about 2 - 3 internodes between the pseudobulbs. Pseudobulbs usually more or less erect or slightly oblique, 7 - 15 x 6 - 12 mm., globular, depressed - ovoid or conical, sulcate but usually not rugose to any great extent. Leaf usually more or less erect but sometimes inclined at an angle, 3 - 7 x 0.5 - 1 cm., narrow ovate to linear or even narrow obovate. Inflorescences 4 - 9 cm. long containing 2 - 8 flowers; peduncle usually much longer than the rhachis; pedicel plus ovary averaging about 5 mm. long and not pronouncedly tuberculate. Flowers usually not very widely spreading, 4 - 6 mm. diam., white, sometimes fading to pale pink or, rarely, pale pink or pale green when first opened. Dorsal sepal 5 - 7 x 2.5 - 3.0 mm., oblong - ovate or ovate, 3 - nerved. Lateral sepals about the same length as the dorsal sepal but 3 - 4 mm. broad at the mentum, from more or less ovate to more or less obliquely triangular, 3 - nerved. Petals slightly more than half as long and about half as broad as the lateral sepals, more or less oblong, rounded or apiculate at the apex, 1 - nerved. Labellum about 3 x 1.5 mm. (flattening to about 5 mm. long), ligulate, erect in the proximal third then curved through about 90°; sides in the proximal third erect and rather high terminating (i.e. in about the middle of the labellum) in slender, almost filiform lateral lobes which vary from almost vestigial to about 0.5 mm. long and are curved forward and sometimes embrace the sides making detection difficult; margins, near the base and in front of the lateral lobes, shortly ciliate; sides in the distal half decurved through about 90°; disc thick, especially in the proximal half where it is shortly ciliate in part. Column about 1.5 mm. long with a foot about 3 mm. long; lateral wings dentate; apical teeth much longer, extending higher than the anther but obliquely forwards.
Flowering period:- mainly September to December.
Distribution:- north-eastern Queensland and south-eastern Cape York Peninsula, from the Eungella Range to the Big Tableland at least, seldom at altitudes below 2,500 feet.

SECTION 1.

3. Bulbophyllum bracteatum F.M. Bail., Bot. Bull. Dept.Agr. Queensl. 4(1891) 17 & Qld. Flor. 5: 1539 (1901); Aust. Orch. Rev. 5, No. 2:64 (1940); Rupp, Orch. N.S.W. 125 (1943).
Adelopetalum bracteatum (F.M. Bail.) FitzG., Aust. Orch. 2: pt. 5 (1893).

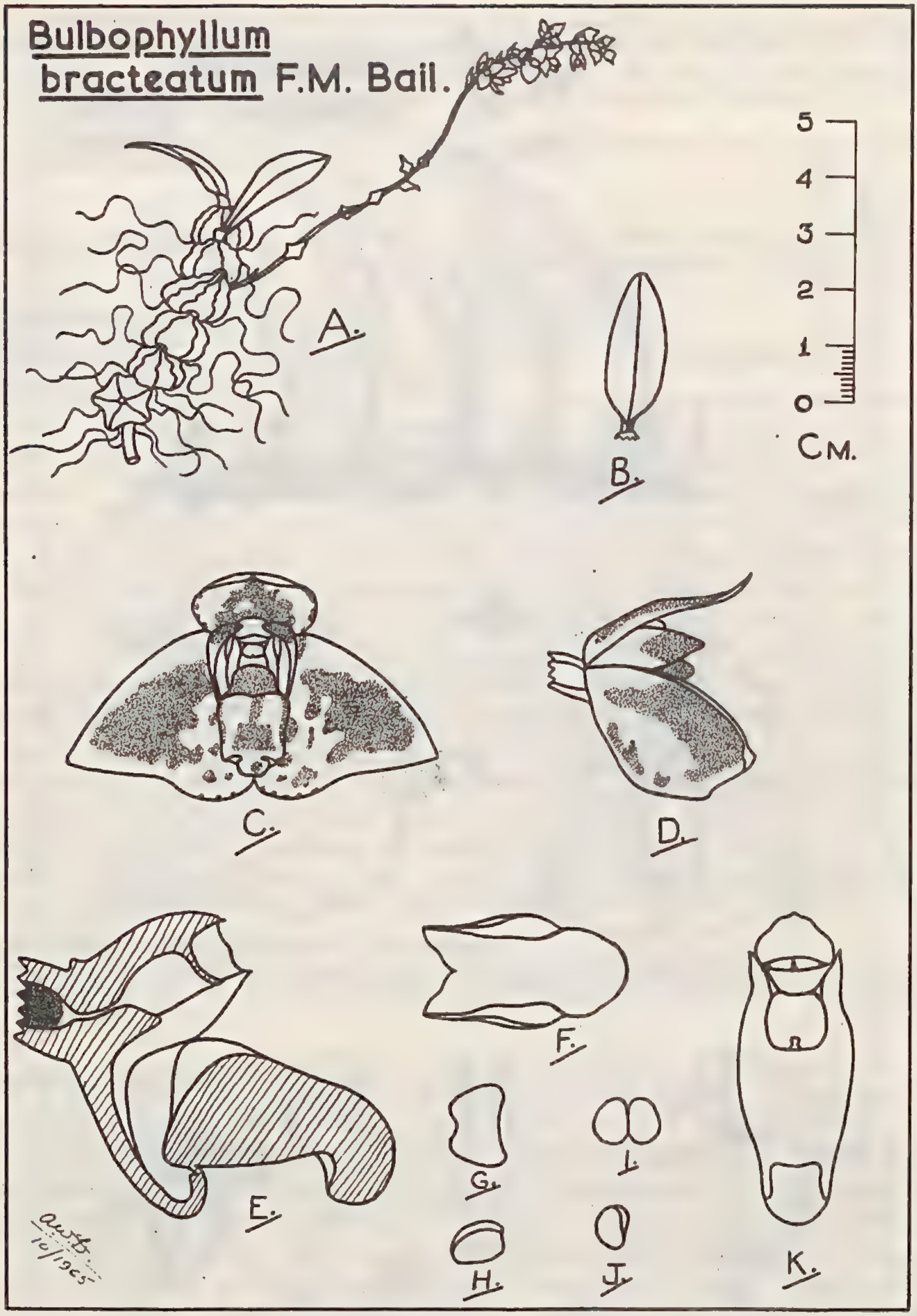
Plant usually epiphytic, growing into rather large dense masses but more often seen as rather small plants. Pseudobulbs usually closely appressed to each other along the rhizome, 7 - 12 mm. diam., depressed globular, usually deeply and longitudinally sulcate with the surface of the ridges uneven, glossy yellowish to dark green. Leaf 15 - 30 x 7 - 11 mm., oblong to ovate or occasionally obovate, very shortly petiolate, rather thin, coriaceous. Inflorescence racemose, 5 - 10 cm. long, the peduncle usually longer than the rhachis and containing rather numerous bracts; rhachis containing up to 25 closely packed flowers which are about 6 mm. diam., widely opening, cream or yellow rather densely mottled with purple and the margins cream or white. Dorsal sepal 3 - 4 x 2 - 2.5 mm., ovate to obovate, usually acute, shallowly concave. Lateral sepals 3 - 4 x about 3 mm., almost deltoid. Petals about half the length of the sepals and 0.7 - 0.8 mm. broad, narrow oblong, usually acute. Labellum about 2 x 1 mm., extremely thick, ligulate, attached to the apex of the column foot by a short claw. Column about 1 x 1 mm; foot about 1.5 mm. long, hooked at the apex. Anther broader than long, broadest and truncate in front. Pollinia more or less typical for the genus.
Flowering period:- mainly October.
Distribution:- North-eastern New South Wales and south-eastern Queensland, mainly on the ranges between the Clarence River and the Bunyah Mountains.

Continued page 104.



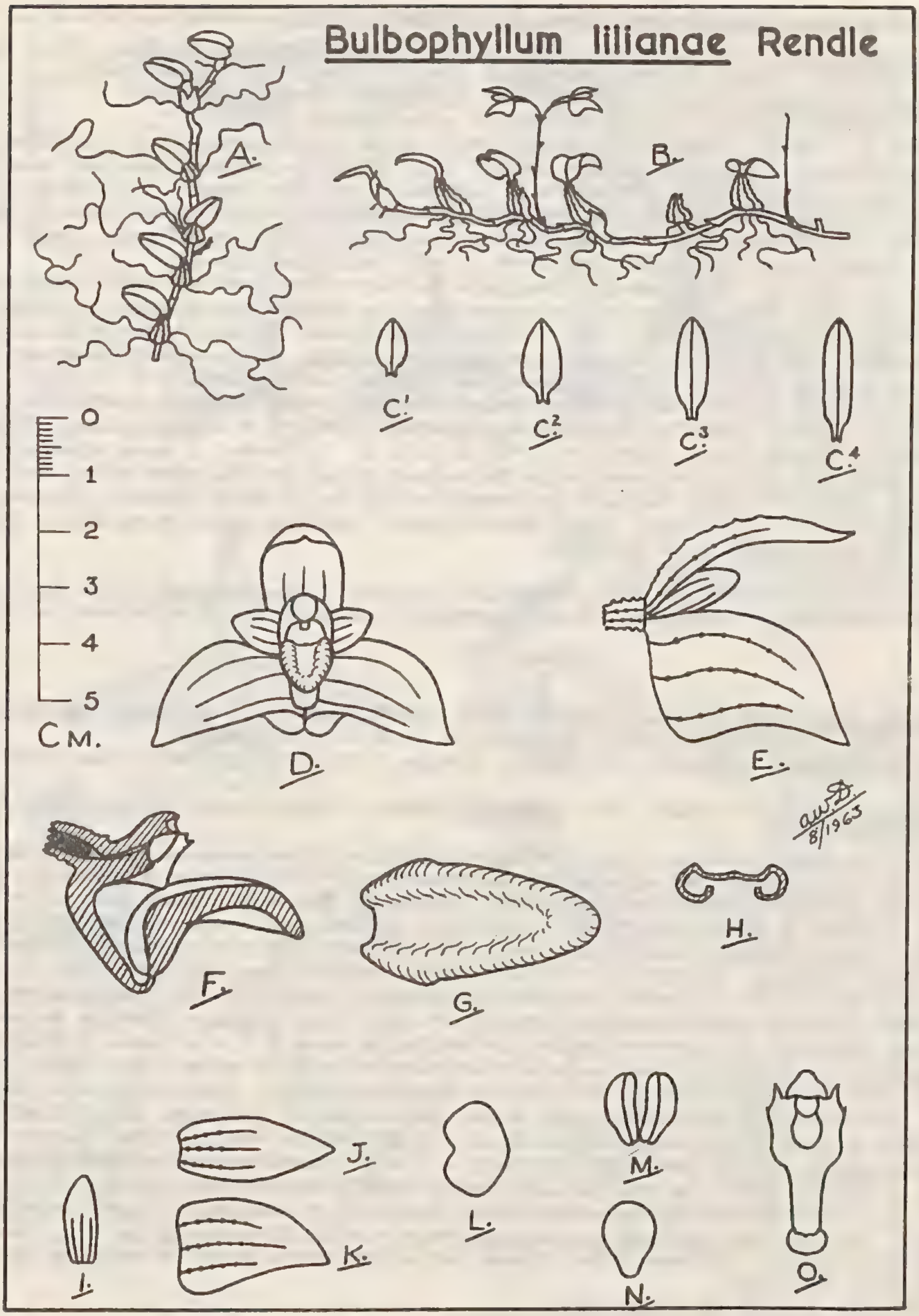
BULBOPHYLLUM NEWPORTII - KEY TO PLATE.

A.	Portion of plant	to scale
B.	Flower from the front	to scale X10.
C.	Flower from the side	to scale X10.
D.	Column and labellum from the side	to scale X10.
E.	Column from the front	to scale X10.
F.	Anther from the side	to scale X40.
G.	Pollinia from the front	to scale X20.
H.	Pollinium from the side	to scale X20.
I.	Longitudinal section of column & labellum	to scale X 7.



BULBOPHYLLUM BRACTEATUM – KEY TO PLATE.

A.	Portion of plant	to indicated scale
B.	Leaf	to indicated scale
C.	Flower from the front	to scale X10.
D.	Flower from the side	to scale X10.
E.	Median longitudinal section of column & labellum	to scale X20.
F.	Labellum from above	to scale X20.
G.	Anther from above	to scale X20.
H.	Anther from the side	to scale X20.
I.	Pollinia from the front	to scale X20.
J.	Pollinia from the side	to scale X20.
K.	Column from the front	to scale X20.



BULBOPHYLLUM LILIANAE – KEY TO PLATE.

A.)	Portions of plant	to indicated scale
B.)		
C.	Variations in leaf shape	to indicated scale
D.	Flower from the front	to scale X 7.
E.	Flower from the side	to scale X 7.
F.	Longitudinal section of column & Labellum	to scale X10.
G.	Labellum from above	to scale X15.
H.	Cross section of lamina of labellum	to scale X15.
I.	Petal	to scale X 5.
J.	Dorsal sepal	to scale X 5.
K.	Lateral sepal	to scale X 5.
L.	Anther from above	to scale X20.
M.	Pollinia from the front	to scale X30.
N.	Pollinium from the side	to scale X30.
O.	Column from the front	to scale X10.

A Review Of The Genus Bulbophyllum Thou. In Australia. Part 1. Section 1. Cont'd.

4. Bulbophyllum lilianae Rendle, Journ. Bot. 55:308 (1917); Rupp & T.E. Hunt, Proc. Roy. Soc. Qld. 60, Pt.6:62 (Dec. 1949); Dockr., Nth. Qld. Nat. 30, No. 132:4 (Sept. 1962).
Bulbophyllum revolutum Dockr. & St. Cloud, Vict. Nat. 74:67 (Sept. 1957).

An extremely variable species leading to frequent mis-identification.

Plant epiphytic or, rarely, lithophytic, preferring to grow into strands along branchlets of trees rather than in masses. Rhizomes usually about 1 mm. diam. or slightly less and usually 2 - 4 internodes between pseudobulbs. Pseudobulbs, spaced 5 - 25 mm. apart, 4 - 12 x 3 - 5 mm., varying from obliquely depressed-ovoid and rhizome-embracing to erect and conical, usually, but not always, sulcate and rugose to varying degrees. Leaf 7 - 25 x 4 - 8 mm., varying from being bent horizontal from the petiole and ovate to erect and broad linear.

Inflorescence 15 - 25 mm. long, usually bearing 2 flowers whose pedicels arise from close together near the apex of the peduncle, but sometimes the flowers are solitary or rarely 3; pedicel plus ovary averaging about 5 mm. long and tuberculate. Flowers only moderately spreading, reddish with 3 darker stripes (nerves) on the sepals and petals which do not extend to their apices and are sparsely tuberculate on the sepals. Dorsal sepal 4.0 - 6.5 x 2.0 - 2.8 mm., oblong to ovate, acute or acuminate. Lateral sepals usually slightly shorter than the dorsal one but 3 - 4 mm. broad at the mentum, sub-ovate, deltoid or almost oblong. Petals 2.5 - 4.0 x 1 - 2 mm., oblong-ovate. Labellum 2.5 - 3.5 x 1.2 - 1.7 mm., ± ovate when viewed from above, thick and channelled practically throughout except for the apex; sides near the base only, erect, the remaining sides devolute or almost convolute; no keels present. Column 1 - 1.5 mm. long with a foot 2.5 - 3.0 mm. long; lateral wings ± deltoid; apical teeth short, bidentate. Pollinia curved when viewed from the front.

Flowering period:- July to September.

Distribution:- South-eastern Cape York Peninsula from the Evelyn Plateau to the Big Tableland, seldom at altitudes below 3,000 feet. It is essentially a plant of the cloud forests or rocks in that belt.

SECTION 1.

5. Bulbophyllum exiguum F. Muell., Fragm. 2:72 (1860); Benth., Flor. Austr. 6:288 (1873); F.M. Bail., Qld. Flor. 5:1538 (1902); Rupp, Orch. N.S.W. 125 (1943).
Dendrobium exiguum (F. Muell.) F. Muell., Fragm. 5:95 (1865); FitzG. Aust. Orch. 2: Pt. 5 (1893).
Bulbophyllum exiguum F. Muell. var. dallachyi Benth., Flor. Austr. 6:289 (1873); F.M. Bail., Qld. Flor. 5:1538 (1902).

Plant epiphytic or lithophytic, growing into huge mats as much as several metres square. Pseudobulbs usually spaced well apart along the branches of the rhizome, 4 - 10 x 3 - 8 mm., ovoid or almost globular, usually rather deeply sulcate but not very rugose. Leaf 15 - 50 x 5 - 9 mm., narrow oblong to lanceolate, thin, coriaceous. Inflorescence racemose but usually few-flowered, the peduncle usually much longer than the rhachis, filiform; pedicels, including ovary, 4 - 7 mm. long, filiform. Flowers 8 - 10 mm. diam., widely opening, pale green to creamy white. Dorsal sepal 4 - 6 x 1.5 mm., narrow triangular to narrow ovate, ± acuminate, practically flat. Lateral sepals about as long as, or very slightly longer than the dorsal sepal, 2.0 - 2.5 mm. broad at the mentum thence contracting to about 1.2 - 1.5 mm. to become narrow trinagular to narrow oblong, usually constricted to a short point at the apex. Petals usually about half as long but almost as broad as the dorsal sepal, ovate to obovate, obtuse or mucronate. Labellum attached to the apex of the column foot by a slender claw, usually about three-quarters as long as the dorsal sepal, about 1 mm. broad in the proximal quarter where it is deeply channelled, thence constricted to about 0.5 mm. broad to become almost linear with the margins somewhat down-curved. Column about 1 mm. long with its curved foot about 2 mm. around the curve; apical teeth two on either side, the forward ones much longer than the others and ± porrect. Anther about as high as long and about two thirds as broad as long, obovate when viewed from above. Pollinia rather broad-oval when viewed from the side but quite slender when viewed from the front.

Flowering period:- mainly March to May.

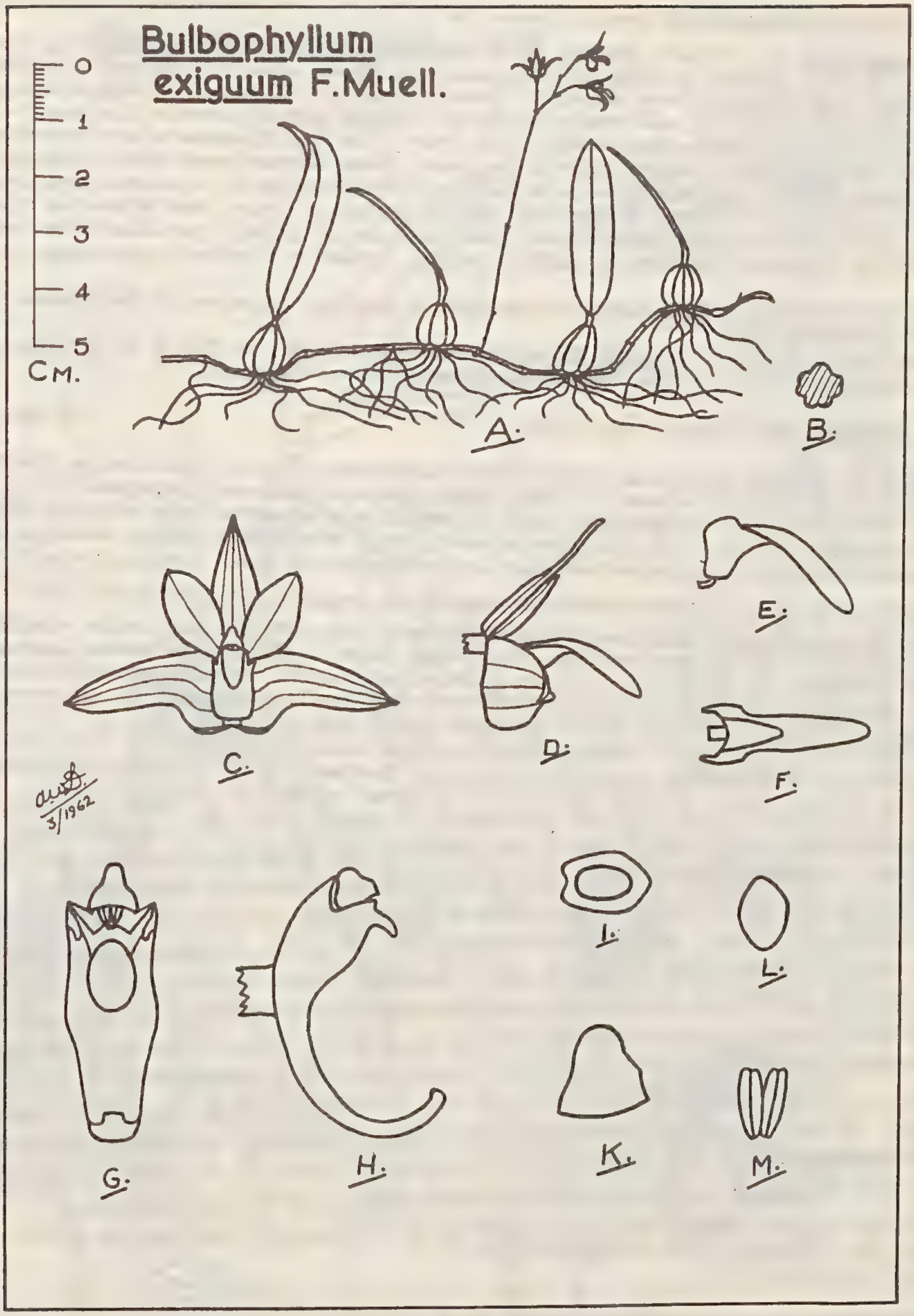
Distribution:- From the extreme south-east of N.S.W. to Rockingham Bay in North Queensland, on both the coast and ranges.

Reports from the Assistant Government Botanist of Victoria about the lectotype specimen of B. exiguum F. Muell. var. dallachyi Benth., indicate that it does not differ from the usual form of the species in any significant way and, as a consequence, it has been included in the synonymy of the species.

The species must be extremely rare in the tropics as all the specimens the author has seen from that region, either fresh or herbarium, that purported to be this species have proved to be B. newportii (F.M. Bail.) Rolfe.

Continued Vol. 2. No. 9.

A. W. Dockrill, 11 Balzer Close, Edge Hill, Cairns.Nth. QLD.



BULBOPHYLLUM EXIGUUM – KEY TO PLATE.

A. Portion of plant	natural size
B. Cross section of pseudobulb	natural size
C. Flower from the front	X 7.
D. Flower from the side	X 7.
E. Labellum from the side	X10.
F. Labellum from above	X10.
G. Column from the front	X20.
H. Column from the side	X20.
I. Anther from above	X40.
K. Anther from the side	X40.
L. Pollinium from the side	X40.
M. Pollinia from the front	X40.

TRICHOGLOTTIS AUSTRALIENSIS Dockr., spec. nov.

The genus Trichoglottis Bl. emend. Reichb. f. is characterised by having: Stems long, climbing or hanging; leaves narrow, oblong or elliptic; inflorescences short, often 1-flowered, and often several in a close longitudinal row at one node; flowers small to fairly large, wide-opening; sepals and petals usually yellowish with red-brown markings; lateral sepals joined at the base to the very short column-foot and sometimes decurrent on the spur of the lip; lip saccate or spurred at base, blade fleshy and usually in part hairy, side-lobes erect, their forward ends often running on to the base of the mid-lobe as (usually hairy) keels or calli,mid-lobe simple or 3-lobed; a tongue-shaped organ, thin and often shortly hairy, on the back wall of the sac or spur, just below the column; column short, with a horn on each side (horns often papillose or hairy); rostellum often vertically elongated below tip of anther; pollinia 4, rather unequal, united in 2 bodies, on a stipe of medium length.

The characteristic features are the tongue at the back of the lip, the horns of the column, and the usually complicated mid-lobe.

The above description is from "Flora of Malaya", Vol. 1, Orchids, by Dr. R.E. Holttum, p. 640., and has been abstracted by the Editor to introduce the genus to members.

Trichoglottis australiensis Dockr., spec. nov.

A. W. Dockrill.

T. lanceolaribus Bl. affinis praecique differt: foliis latioribus, 10 x 2.5 cm. contra 10 x 0.7 mm.; floribus majoribus, 10 mm. altis contra 7 mm. altis; calcare breviore comparate, 1/3 longitudine labello contra 5/6 longitudine labello; appendice postice calcaris longiore comparate fere longitudo calcaris contra 1/4 longitudine calcaris; lobis lateralibus labello oblongis transverse contra triangularibus; lobo medio labello angustiore comparate, 2.5 x 2.5 mm. contra 1.3 x 2.3 mm.

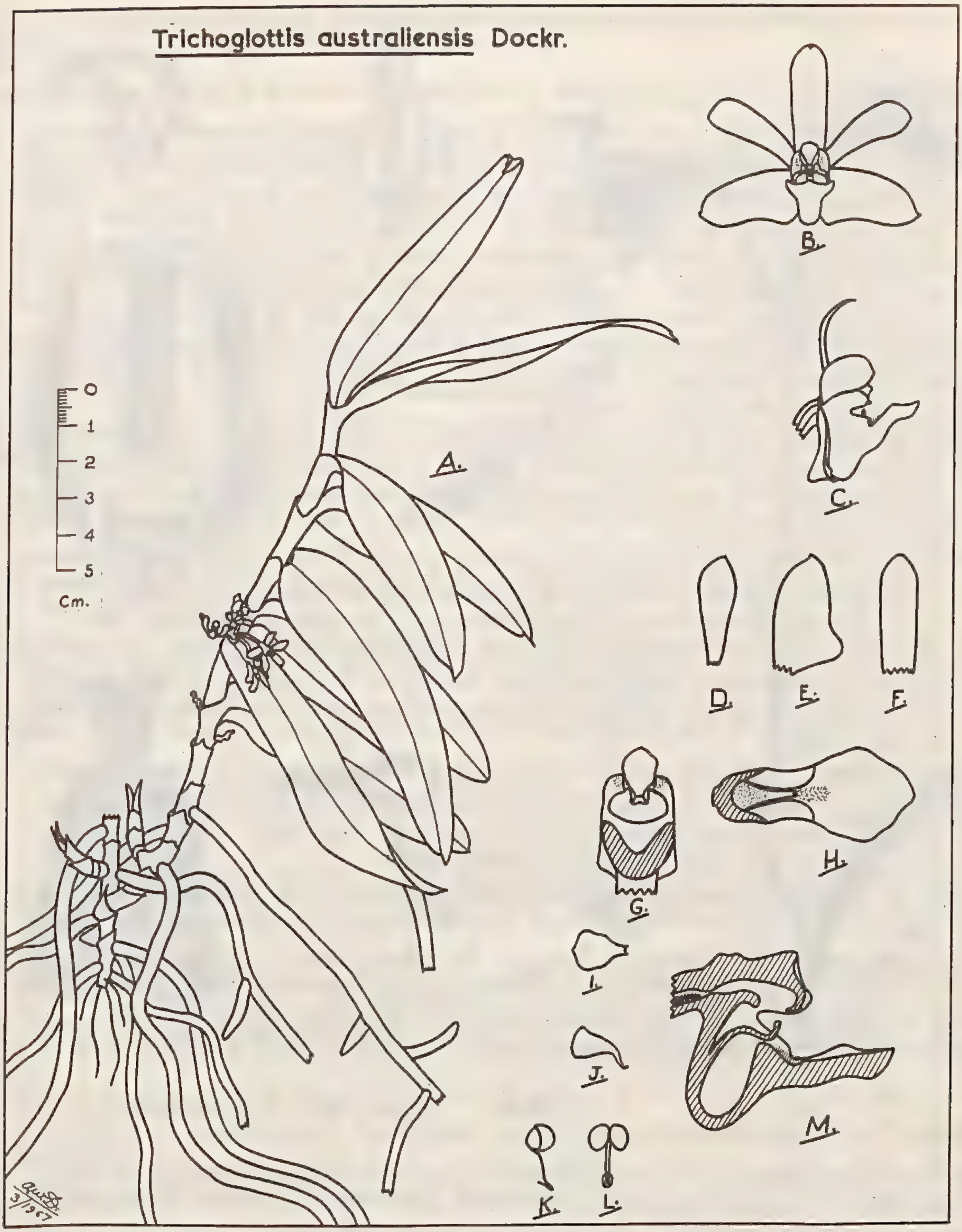
Holotype: Mc.Ilwraith Range, Cape York Peninsula (M. Brown 18 - 3 - 1967 Herb. BRI.)

Stems erect or drooping and usually branching at the base, 15 - 20 cm. long in the specimens seen but they probably grow longer than that, 4 - 5 mm. diam., slightly flattened. Leaves drooping from the base, 7 - 10 x 1.8 - 2.5 cm., oblong or falcate, usually unevenly emarginate but varying to apiculate. Inflorescences usually more than one from a node, 4 - flowered in the specimens seen; peduncle extremely short; pedicels 5 - 10 mm. long. Flowers 10 - 12 mm. diam. Dorsal sepal about 6.5 x 2.0 mm., oblong, bluntly acute. Lateral sepals about 7 x 3 mm., more or less oblong with a rounded lobe at the posterior near the base, more or less mucronate. Petals about 6 x 2 mm., more or less spathulate. Labellum about 5.0 - 5.5 x 2.5 mm., spur about 1.5 x 1.5 x 1.5 mm., more or less cylindrical, rounded at the apex, the appendage at the posterior wall at least 2 mm. long, broad at the base and tapered to a long slender apex, erect in the proximal half, where minutely hairy, then porrect and the distal quarter erect and projecting out of the labellum, the anterior of the orifice greatly thickened; lateral lobes joined by the posterior margin to the base of the column, about 0.5 x 1.0 mm., transverse oblong, very thick; mid-lobe about 2.5 x 2.5 mm., more or less trapeziform but blunt, thick; disc between the lateral lobes hairy. Column about 3 x 2 mm. with the very short foot almost at right angles to it; apical teeth reduced to rounded knobs which have a few short hairs on top. Rostellum extended vertically downward for a short distance beyond the rostrum of the anther. Stigma transverse oval. Anther with a rather long and slender rostrum. Pollinia dark coloured; stipe about 1½ times the length of the pollinia, linear; retinaculum about ½ the length of the pollinia, more or less oblong. This species appears to have affinities with T. lanceolaria Bl., differing from it mainly by: leaves broader, up to 10 x 2.5 cm. compared with up to 10 x 0.7 cm.; flowers larger, 10 mm. high compared with 7 mm. high; spur relatively shorter 1/3 the length of the labellum compared with 5/6 the length of the labellum; posterior appendage of the spur relatively longer, almost the length of the spur compared with only ¼ the length of the spur; lateral lobes of the labellum transverse oblong rather than triangular; mid-lobe of the labellum comparatively narrower, as long as broad compared with only ½ as long as broad.

As this is the only member of the genus known to occur in Australia, the species name "australiensis" is appropriate.

Readers are reminded that all material appearing in The Orchadian, under the name of A. W. Dockrill is copyright.

A. W. Dockrill, 11 Balzer Close, Edge Hill, Cairns. Nth. QLD.



TRICHOGLOTTIS AUSTRALIENSIS – KEY TO PLATE.

A. Portion of plant	to indicated scale
B. Flower from the front	to scale X 5.
C. Flower from the side	to scale X 5.
D. Petal	to scale X 5.
E. Lateral sepal	to scale X 5.
F. Dorsal sepal	to scale X 5.
G. Column from the front	to scale X10.
H. Labellum from above	to scale X10.
I. Anther from above	to scale X10.
J. Anther from the side	to scale X10.
K. Pollinarium from the side	to scale X10.
L. Pollinarium from the front	to scale X10.
M. Median longitudinal section of column & Labellum	to scale X10.

OBSERVATIONS ON SOME NATIVE ORCHIDS OF THE CENTRAL WESTERN SLOPES OF N.S.W.

Cont'd.

W. T. Upton

Caladenia carnea. Quite a number of flowers of a very lovely dark pink form were seen although the flowers were average to small in size.

Pterostylis boormanii is a most remarkable orchid and without doubt the most common of the "rufous group" of the Pterostylids in the Central West. To see this gem in its natural habitat really brings out the romanticism of one's soul: it stands as a beautiful, but perhaps grotesque god, the master of all around, a sentinel watching for evil in its own peaceful world. Its dark maroon almost brownish flowers facing, and maybe pointing, in almost all directions. It is mostly a short sturdy plant with only its rosettes, bracts and unopened flowers green, even then the rosettes were often dying and mainly yellowish to brown at flowering time. Although quite a number of plants were seen, it is by no means common and most colonies consisted of only about three to six flowering plants. It appears to keep to the ridges or higher parts of the hills and grows in or on the very rocky outcrops. The tubers are often flattened where they become tightly wedged between small rocks. There is usually very little ground cover near it, its habitat having the appearance of a miniatrue barren rock garden; and more often than not it is growing beneath the White Cypress Pine (Callitris glauca) on the sunny side of the hills so that it gets filtered sunlight most of the day.

Pterostylis barbata was seen in quite a number of locations, generally on the flat ground between the hills on the southern side, but still receiving filtered sunlight most of the day. It was mainly growing in grassy, lightly timbered places with a fair amount of ground bush cover, not so rocky as for Pt. boormanii. One large area was literally one great big colony of hundreds of plants, widely dispersed. This is a fascinating species with an unusual labellum beset with long yellow hairs. The fower is green.

Caleana minor. Only one small colony of this strange orchid, with flowers looking like flying ducks, was seen, growing under similar conditions to Pt. boormanii, but not on the ridges. The labellum is worthy of particular mention as it is covered with beautiful jewel-like tubercles looking like, to use my wife's phrase, "a flat blackberry". Considerable difficulty was experienced in drawing this species as the labellum disappeared into the column wings and about every twenty minutes and I had to keep it close to the table lamp to coax it out again and even then it was necessary to wait a considerable time. The flowers I brought back all seemed to close at regular intervals during the day, without any obvious reason, and then open again very slowly after a lengthy period, but were closed all evening and I assume all night unless placed near a very bright light.

Thelymitra aristata. This orchid was quite common and widespread and some very beautiful and large flowered specimens were seen growing under a wide range of conditions.

Thelymitra carnea although it has much smaller flowers than the previous species, is a beautiful reddish-pink with only two to four flowers per plant. One large colony containing about 30 plants was seen in the same area as Caleana minor.

Calochilus robertsonii was widespread throughout the area, sometimes just one plant, at other times two and three plants close together. All were quite robust plants and added a dash of brilliant colour to the surrounding bush with the iridescent purple, green and blue of their hairy labella.

Caladenia reticulata. Only one plant was seen, it was growing with C. dilatata, near quite large tufts of grass and represented quite a contrast to it, its lip being a dark veined reddish-purple all over and the perianth segments generally a darker colour than C. dilatata.

In addition to the foregoing, we also saw dying flowers of Pterostylis parviflora and another Pterostylis, the leaves of Eriochilus cucullatus and the dying stems of a small flowered Diuris.

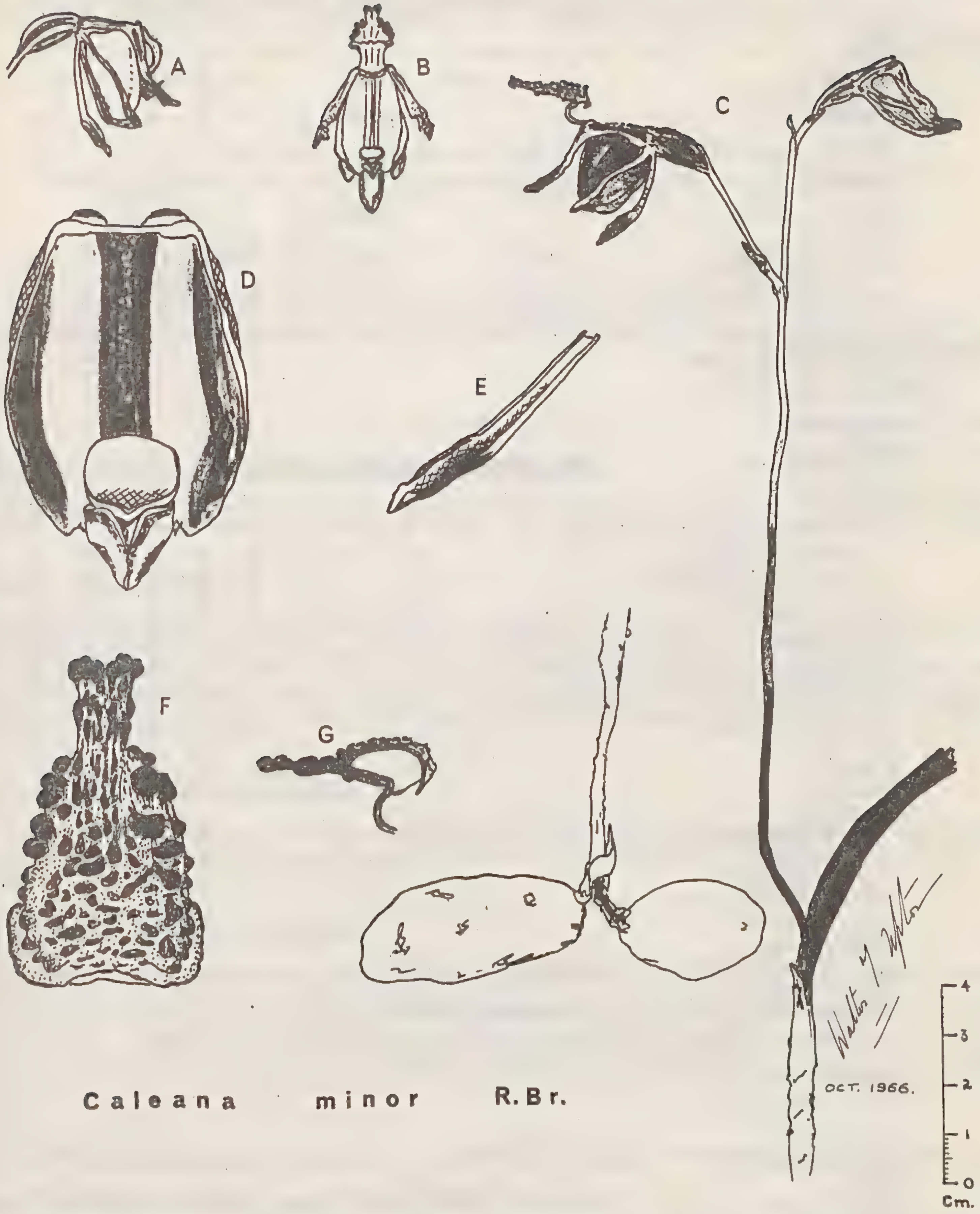
W. T. Upton, 71 Wesley Street, Elanora Heights. N.S.W.

A NOTE ON THE POLLINATION OF CALADENIA ALBA R. Br. cont'd. from Vol. 2. No. 7.

P. J. Uhlherr.

In the process of backing out of the tube formed between the column and labellum, the fly's thorax must have contacted the rostellum since a pair of pollinia was attached to the insect's back and the flower's anther was left empty.

The function of the hinged labellum in the pollination of many Caladenia species is discussed in detail by Rica Erickson in "Orchids of the West", second edition, Paterson Brokensha, Perth. 1965, pp. 79 - 81.



Caleana minor R.Br.

CALEANA MINOR – KEY TO PLATE.

A. Flower from side with the labellum in the 'closed' position	2X.	D. Column from front	8X.
B. Flower from front	2X.	E. Dorsal sepal	4X.
C. Plant	2X.	F. Labellum from above	8X.
		G. Section through Labellum	4X.

The Flowering Periods of Australian and New Zealand Orchids - Section 2. Queensland.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cymbidium suave							X	X	X			
Dendrobium adae							X	X	X	X		
aemulum							X	X	X			
agrostophyllum								X	X	X		
attenuatum			X	X	X	X	X	X	X	X	X	
baileyi	X	X										
bairdianum	X										X	X
beckleri								X	X	X		
bifalce					X	X						
bigibbum												
var. bigibbum	X	X	X	X	X	X	X	X	X	X		
var. superbum												
sub. var. superbum	X	X	X	X	X	X	X	X	X	X		
sub. var. compactum	X	X	X	X	X	X	X	X	X	X		
canaliculatum												
var. canaliculatum								X	X	X		
var. nigrescens								X	X	X		
var. pallidum								X	X	X		
cancroides	X	X	X	X	X							
carri								X	X	X		
cucumerinum	Almost any month mainly Sep - May											
delicatum								X	X	X		
discolor												
var. discolor												
forma discolor				X	X	X	X	X	X	X	X	X
forma broomfieldii				X	X	X	X	X	X	X	X	X
var. fimbrilabium				X	X	X	X	X	X	X	X	X
var. fuscum				X	X	X	X	X	X	X	X	X
falcorostrum									X			
fleckeri	X								X	X	X	X
foederatum	X									X	X	X
gracilicaule												
var. gracilicaule							X	X	X			
gracillimum								X	X			
grimesii				X	X	X	X	X				
johannis									X	X	X	
kingianum												
var. kingianum								X	X	X		
var. album								X	X	X		
var. aldersonii								X	X	X		
var. pallidum								X	X	X		
var. silcockii								X	X	X		
lichenastrum												
var. lichenastrum	Almost any month											
var. prenticei												
forma prenticei	Almost any month											
forma aurantiaco - purpeureum	Almost any month											
linguiforme												
var. linguiforme							X	X				
var. nugentae						X	X	X				
luteocilium	X	X								X	X	X
monophyllum								X	X	X		
mortii	X	X	X	X	X							
ophioglossum						X	X	X				
pugioniforme										X	X	
racemosum	Almost any month principally							X	X			
rigidum	Almost any month											
ruppianum												
var. ruppianum												
forma ruppianum							X	X	X	X	X	
forma magnificum								X	X	X		

Continued Vol. 2. No. 9.

THE ORCHADIAN

AUGUST, 1967 PRICE: 30 cents PAGE: 111
VOL. 2 No. 9

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: J.H. Scott, R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
14 SEP 1967

ANNUAL GENERAL MEETING - 9th SEPTEMBER, 1967.

The Annual General Meeting of the Australasian Native Orchid Society will be held in room 204, Y. W. C. A., Liverpool Street, Sydney, at 2.30 p.m. All members should endeavour to attend.

ELECTION OF COUNCIL

I am pleased to report the unopposed election of Council as listed above. As there was only one nominee standing for each position, all were elected without the necessity of a ballot.
Mr. Doug. Dawson, a member of the Sydney Group Committee has been elected to the position of Records Secretary of our Society. Bob Curtis our retiring Records Secretary held the position from the formation of our Society. Our congratulations to Doug. and our sincere best wishes to Bob for his future activities.

BACK ISSUES - THE ORCHADIAN

Back issues of all numbers of The Orchadian are freely available at 40 cents each. Drop a note to Harold Jay at the Society's postal address for your requirements. Bound copies of Vol. 1. No.1-12 are also available from stock at $6.60.

MATERIAL FOR THE ORCHADIAN

It has come to the attention of your Editor that there is some feeling that your magazine is too technical and that there should be more material of a general nature. I agree completely. However, as our technical men are the only people presenting material for publication the result is inevitable. One of our foremost growers when requested to supply material for publication on his cultivation techniques replied, "I will tell you how I do it and you can write it". This attitude is not what we want. Let me have your ideas and cultivation techniques in writing for publication NOW.

SAPROPHYTIC ORCHIDS OF AUSTRALIA & NEW ZEALAND. continued from Vol. 2. No. 8.

S. C. Clemesha

THE GENERA DIPODIUM, GALEOLA AND THEIR ALLIES.

Dipodium hamiltonianum F. M. Bail., in Proc. Linn. Soc. N.S.W. 6 (1881), 140, syn. *D. punctatum* var. *hamiltonianum* (F. M. Bail) F. M. Bail., in Queensl. Fl. 5 (1902), 1549. was named after Mr. A. G. Hamilton, the discoverer, who collected many orchid specimens while a

continued page 112.

Saprophytic Orchids of Australia & New Zealand. contd.

The Genera Dipodium, Galeola and Their Allies.

school teacher at Guntawang via Mudgee. These were sent to several people, but principally to Mr. R.D. FitzGerald who used them to illustrate his "Australian Orchids". The orchid under discussion is illustrated in Aust. Orch., 1, 7, 1882 (as a form of D. punctatum) which is illustrated on the same page. Near the end of his long life (at the age of 85) Mr. Hamilton helped form the Orchid Society of N.S.W. and his interesting articles can be found in the first issues of the "Aust. Orchid Review". Dipodium hamiltonianum differs from D. punctatum in having fewer, larger, yellow-green flowers which bear dark spots. It is rarer than D. punctatum and is found from the Canberra region to north Queensland and principally in the Tablelands and Western slopes. This plant also is a summer flowerer.

The genus Galeola is wholly saprophytic and extends from Japan to Australia. It is very closely allied to the non-saprophytic genus Vanilla. The fruit of one of these - V. planifolia Andrews provides the best vanilla for commerce and is grown for commercial purposes in many parts of the tropics and sub-tropics. Several other species of Vanilla are cultivated for this purpose. V. planifolia was cultivated by the Aztecs in Mexico long before the arrival of the Spanish. There is also a group of leafless Vanilla species including V. barbaellata Reichb.f., V. dilloniana Correll, V. lutescens Mog. from Tropical America, V. aphylla Bl. from Malaya. Java and Tenesserim, V. walkeriana Wight from India and V. phalaenopsis Reichb. f. from Madagascar. None of these plants appear to be saprophytes as they have green stems and some are cultivated in their native countries, others have been cultivated in England. The Galeola and Vanilla species winged seeds are the largest orchid seeds in the world though they still are small compared to most seeds. Perhaps non-saprophytic hybrids between the Vanilla spp. and Galeola spp. could be produced. Galeola cassythoides (A. Cunn.) Reichb.f., Xen. Orch., 2(1869) 77. - name meaning, like Cassytha (a parasitic creeper) grows from a thick fleshy rhizome. Its stems are brownish, up to about fifteen feet tall but more commonly about six feet and climb up trees with aid of sucker-like roots not unlike those of Philodendron and Vanilla spp. They are completely devoid of chlorophyll, bear few scale-like stem clasping bracts. The stem branches freely. The very numerous flowers are found in terminal panicles on the ends of the branches. The brown and yellow flowers are sometimes stained pinkish. The flower segments are converging, oblong lanceolate and about ½" long. This plant would be quite beautiful except that the absence of chlorophyll gives it a lifeless appearance. It grows from Mt. Kembla near Wollongong to southern Queensland and seems to favour stony soils under Eucalyptus or forests containing a mixture of Eucalyptus and rain forest trees. It is more common north of the Hunter River than south of it and flowers principally during September and October.

Galeola foliata (F. Muell.) F. Muell., Fragm., 8 (1873), 31(name referring to the leaf-like bracts) is the tallest orchid in Australia and probably the tallest orchid and tallest saprophyte in the world. It has been known to reach forty feet and commonly reaches twenty feet. Its habit is essentially the same as that of G. cassythoides but it differs in having a large branching root system in place of a thick fleshy rhizome. These roots are quite long, thick and brittle. It also differs in having a yellow or green stem which bears large leaf-like bracts which are about 2" long and are reminiscent of the leaves of Vanilla planifolia. In these points it is closer to the Vanilla spp. than G. cassythoides. Galeola foliata produces its pretty inch wide, Cattleya-like flowers between October and January. They are pale golden yellow with a pink and red marked labellum and like those of G. cassythoides they are produced at the end of the branches. After flowering G. foliata dies back almost to ground level, for it reaches its enormous height annually, so perhaps it also is the world's fastest growing orchid. When in full flower this plant is very beautiful. It is essentially a rain forest plant, found from Port Macquarie to southern Queensland. It appears again in northern Queensland (between the Fitzroy and Endeavour Rivers) where it is both coastal and highland dwelling. In northern Queensland it is much more common. This species appears to require wood at a certain stage of decomposition for its growth and sometimes appears in large numbers after an area of rain forest has numerous trees in it cut down i.e. in timber cutting, but only to disappear after a few years. It also has been reported growing prolifically in a sawdust heap near a seasonally used timber mill and here it had to be cut away from parts of the mill before it could be entered. Normally however, Galeola foliata is short lived and plants do not survive more than a few years, presumably because the soil condition changes as the wood rots down. Facts which make this all the more surprising are that this orchid produces yellow or green stems. If they are green then the plant makes much of its own food. In the writers opinion it is likely to have green stems when the soil is not giving the plant as much food as it requires. So in this way the orchid shows considerable adaptability

continued page 113.

WARRINGAH GROUP FIELD DAY 18-6-67

Herbert D. Hall

Destination Frazer Park. E. T. A. 9.00a.m. Plan: Orchid hunt. Participants: Warringah Group of A. N. O. S. with invitations to Sydney and Newcastle Group to attend.

Dismal rainy weather during the preceding week, and continuing showers forecast, deterred the majority of members from attending. However, Wal & Jill Upton decided to make the trip unless heavy rain occurred and they happily agreed that I accompany them. Departing at 7.15 a.m. the E. T. A. was made with five minutes to spare.

First interest was not an orchid, but a beautiful Grevillea, a very low shrub, which was similar to, but not G. rosmarinifolia. They were old timers growing from black stumps, probably burnt over many times, but still surviving. Some cuttings for striking and a few seed pods found, should ensure a new addition to Wal's garden.

We had parked in front of an excavated area from which most of the road surfacing had been taken. Scouting along the opposite branch road for about one hundred yards we first tried about fifteen feet in on the down side, then crossed to the high side, where in semi open country with low scrub Lyperanthus suaveolens, Prasophyllum elatum and Acianthus fornicatus were soon located.

Back to the car, where we were joined by Philip March of Newcastle Group who had doubted whether anyone would arrive because of the weather. He mentioned a spot in the Park where Caleana could be found and offered to take us to a gully near Swansea which abounded in orchids. Philip returned home to bring his family. Warringah Group President Wilbur Jeffries, his wife Mavis and her sister Netta then arrived. They had pulled up about half way to our position and Wilbur had already made some finds. While waiting the return of Phil March, an exploration around the edges of the excavations revealed many sturdy plants of Prasophyllum elatum, an Eriochilus cucullatus, several Pterostylis parviflora and many Acianthus fornicatus.

About eleven Phil returned with Val and baby Paul and the party decided to look at one of the Park beaches. The right hand branch of the road was selected because that beach had a shelter shed. The billy was boiled and a cup of tea with lunch was enjoyed. At the beach it rained continuously, and after lunch there were many slips and slides on the dirt road getting away from the beach. At the original rendezvous it was decided to let Phil March lead the party to the gully described. As the party started a fourth car joined which on arrival at our destination turned out to be Newcastle member Mervyn Walker and family.

On the main highway we turned towards Newcastle and when nearly to Swansea turned left on to a broken coal surfaced road. A short distance and the cars were parked in a natural clearance. After introductions to Mervyn and family the men set out through a densely timbered and almost swampy area which was carpeted with Acianthus fornicatus, A. exsertus, Corybas pruinosus, Pterostylis baptistii, Pt. curta, Pt. grandiflora, Pt. longifolia, Pt. nutans, Pt. obtusa and Pt. pedunculata.

Back across the path and on the hillside orchids were in profusion, near the top of the hill we saw plants of Galeola cassythoides. One had many branching brown stems about four to five feet high showing signs of many panicles to be festooned with hundreds of flowers this season. This particular plant was attached to the stump of a recently felled ironbark, therefore its days may be numbered although a small branch sprouting away from the stump could be its salvation.

Mention by Phil March of a Pterostylis that he had not identified decided the party to proceed to another location, just a few hundred yards in from the ocean cliffs. Pterostylis ophioglossa and Pt. concinna were found in fair quantity, but the exciting identification of the day was a natural hybrid between these two species, constituting a new find. Flowers were taken for the purpose of drawing and no doubt more will be heard from Wal Upton in due time.

The trip back to Elanora was uneventful except that Andrew Upton went off to sleep well content with the day. Although the hunt was most interesting, Phil March's escort to his finds deserves our utmost thanks for making it a day long to be remembered.

Herbert D. Hall, 31 Waterview Street, Mona Vale. N. S. W. 2103. Member Warringah Group A. N. O. S.

Saprophytic Orchids of Australia and New Zealand. Contd.

The Genera Dipodium, Galeola and Their Allies.

which should help it to survive. It is interesting to compare a green plant of G. foliata with the non-saprophytic leafless Vanilla species which carry the same, or less chlorophyll in plants the same size as they lack the green bracts of the Galeola. The leafless Vanilla species are able to live and flower on the supply of food they make but this amount will not even keep G. foliata alive. Why?

continued page 114.

A NEW SPECIES OF PTEROSTYLIS FOR NEW SOUTH WALES

W. T. Upton

Pterostylis conoglossa W. T. Upton sp. nov.
Planta gracillima 10 - 15 cm. alta. Bracteae duae vel tres (10-14 cm. longae); inferiore, si presente, basi caulis. Folia 4 vel 5 basi rolulata, petiolata, ex eis uno parvo bractiformi, marginibus integris aut crenulatis. Flos terminalis, solitarius, erectus aut aliquanto declinatus, translucens, viridi - et brunneo - vittatus, apicem versus perianthii segmentorum praecique brunneo-vittatus. Sepalum dorsale ca. 35 mm. longum, acuminatum, tenui acumine ca. 5 mm. ultra petala extensum, tertia parte antica plus minusve declinata. Sepala lateralia ca. 3 cm. longa, basi partem tertiam longitudinis connata, ad acumina filiformia 1 cm. super galeam extensa, apicibus aliquando clavatis, sinu lato paene semicirculari. Petala ca. 2 cm. longa, apicem versus obtusa cum acumine. Labellum 11 mm. longum, 2 mm. latum, apice profunde bifidum (2 mm.), supra sinum sepalorum inferiorum prominens atque columnam altitudine aequans, ubi procurvum 1½ mm. latum, iugo angusto medio, apice atrobrunneum tum 2/3 partes longitudinis pallescens tum paene translucens; appendice basali ca. 3 mm. longa, recurva, translucida, ad apicem penicillata. Columna 12 mm. alta, (pede) ca. 2 mm., (alis) angustis brunneo-maculatis, lobis superioribus acuminatis, viridi-translucida. Stigma tumidum, longum, angustum, proxime super columnae centrum positum.

Very slender plant 10 to 15 cm. in height. Stem bracts 2 or 3 (10 - 14 mm. long) lower one, if present, at base of stem. Leaves 4 or 5 in a basal rosette, petiolate, one of the leaves small bract-like, margins of leaves entire or crenulate. Flower terminal, solitary, erect or leaning forward slightly, translucent with green and brown markings, mainly longitudinal stripes with brown mainly towards the apex of the perianth segments. Dorsal sepal about 35 mm. long acuminate, extending in a fine point for about 5 mm. past petals, anterior third slightly curved forward. Lateral sepals about 3 cm. long, connate at the base for about one third of their length, then extending to filiform points 1 cm. above galea, tips occasionally clavate, sinus wide almost semi-circular. Petals about 2 cm. long rounded towards apex but terminating in a fine point. Labellum 11 mm. long, 2 mm. wide, deeply bifid at the apex 2 mm., protruding forward well above the sinus of the lower sepals and level with the top of the column, 1½ mm. wide at the point where it curves forward, narrow ridge down the centre, dark brown at the apex and becoming lighter for two thirds its length and then almost translucent, recurved translucent appendage at the base about 3 mm. long and penicillate at its apex. Column 12 mm. high, column-foot about 2 mm., column-wings narrow with brown markings, upper lobes acuminate, column translucent green. Stigma tumid, long, narrow and positioned just above the centre of the column. Flowering period June.
Holotype:
Swansea, N.S.W. W. T. Upton 18-6-67 Herb. N.S.W. 84898

Small colony of about 20 plants, 5 in flower, in sandy soil enriched with leaf mould, under windswept Melaleuca scrub, overlooking the Ocean. Small colony of Pt. ophioglossa, 2 plants in flower, and large colony of Pt. concinna, numerous plants in flower, close by. From the general appearance of the flowers it is reasonably certain that this species is a natural hybrid between Pt. ophioglossa and Pt. concinna.
The discovery of this species was made during the course of a Field Day arranged by the Warringah Group of The Australasian Native Orchid Society, at which only a few members attended due to bad weather. Mr. Herbert Hall has already reported in The Orchadian. We were directed to the area where this discovery was made by Newcastle Group members Philip March and Mervyn Walker.

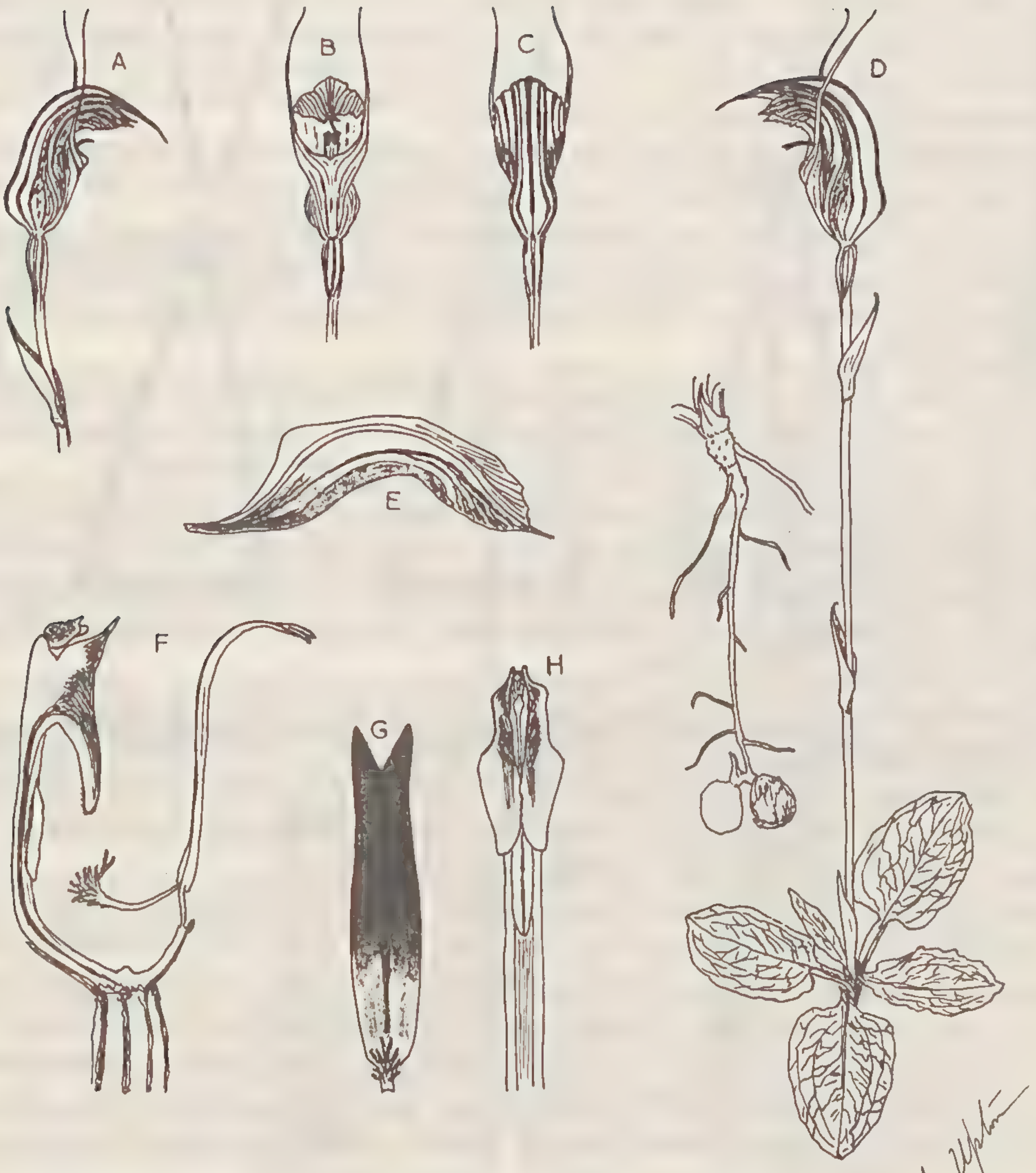
W. T. Upton, 71 Wesley Street, Elanora Heights. N.S.W. 2101.

Saprophytic Orchids of Australia and New Zealand. Contd.

The Genera Dipodium, Galeola and Their Allies.

The answers appear to be that the Vanilla species grow more slowly and flower less freely. After flowering they do not die back but continue to grow while the Galeola grows rapidly to attain its height of twenty to forty feet in a year and therefore requires much more food in a shorter time than the Vanilla. It then flowers very freely, which requires still more food. At times a large percentage of these flowers form seed pods - on one occasion the author saw a plant of G. foliata in north Queensland which was no less than thirty feet and in appearance was just one mass of seed pods. In addition to the high amount of food these pods would require, the plant allows itself little provision to grow again and perhaps only does so if a small percentage of seed pods form.

continued page 119.



Pterostylis conoglossa W.T.Upton.

Walter T. Upton

JUNE 1967

KEY TO DRAWING OF PTEROSTYLIS CONOGLOSSA

A. A typical flower from side natural size
B. Flower from front natural size
C. Flower from rear natural size
D. Plant natural size
E. Petal twice natural size
F. Column & Labellum from side, 4 times natural size
G. Labellum pressed flat, 4 times natural size
H. Column from front, 4 times natural size

GADGETS, KNICK-KNACKS & HOME MADE DEVICES TO ASSIST THE AMATEUR NATIVE ORCHID GROWER.

H. Jay

What is a gadget? Our dictionary tells us it is an ingenious contrivance, or a cunning mechanical device.

Recently I listened to a lecture by a leading grower who recounted the story of his weekly visit to the tip and how he was able to gather such discards as coat hangers, foam, ice cream cartons etc., and how he had made use of these for growing his orchids. Many came within the scope of our heading but as not all of us have a tip handy for the collection of junk, I wish to pass on to our readers some helpful pieces that can be obtained commercially, or made in the average home workshop, which I have come across recently.

I would also suggest that if any of the ideas stated appeal to members and they know of others these should be sent to our Editor for publication. Remember, not one of the ideas given below are my own and recognition of where I came across them is given.

Recently at a Sydney Group meeting a member showed a plant of Dendrobium teretifolium growing on a section of hard wood, the original plant being fixed to it by means of a contact glue used for laying lino tiles. Since this date I have found others using a contact glue for stabilising small Bulbophyllums to their host. Eric Gordon, our President, from his own experience can vouch for this success.

Our Past President, Bill Murdoch, uses a pot cut in halves vertically, to add support to additional fibre when the roots of an epiphyte need more room to roam than that present on the original slab of tree fern fibre. I have also seen fibre added similarly by the use of stainless steel gauze for the same purpose, it looks tidy and gives a neat appearance.

One hybridist in taking seedlings from the flask uses plastic block refrigerator containers with a hole drilled in each compartment for drainage. He normally plants 2 seedlings per compartment.

Once I bought a native Dendrobium from a commerical grower and noted how well the plant was fixed in the pot, however, as it did not grow under my method of cultivation I emptied out the compost to replace it and found the plant was held firmly in the pot because a meat skewer had been previously solidified into a 1½" cube of cement. The cube at the bottom of the pot and the plant fixed to the skewer with a twistie.

Now for the two most useful gadgets I have come across for a long time and which I am now using with much success. The wire flower pot holder and the fir bark producer.

The Wire Flower Pot Holder - This was shown to me by one of our members and after some research I find that Dr. Keith Kirkland brought back a sample from Hawaii with him on a recent trip. I have used these for hanging up to 6" pots, also those who like to suspend a pot can use 3 of these with a loop at the top. Instead of a hook place them 120 degrees apart and the pot can then be suspended by, say three wires attached to these holders.

The accompanying drawing shows the clip. For those who wish to bend these up for use, it's a simple matter, you only need a pair of heavy plyers. Some use phospher bronze wire, others a stainless steel wire 12 gauge being suitable. If care, and I mean care is applied, old coat hanger wire can be used but do not, in applying to pot, bend too much otherwise the elastic limit will be exceeded. I have about 25 pots at least, hanging using such coat hanger wire, although I much prefer to use something with a higher tensile strength so as to increase the elastic limit. In the accompanying drawing I have attempted to show how I have found it preferable to bend these up. The bend and shape of same, in the order I make mine is indicated. The clip can be modified to suit various types of pots. Looking at the drawing, the hook number 4 can be inside the loop or outside as shown depending upon the position of the pot flange. Trial and error will soon give the result required.

To be continued Vol. 2. No. 10.

HAVE COMMON NAMES, WHEN APPLIED TO OUR NATIVE ORCHIDS, ANY JUSTIFICATION ?

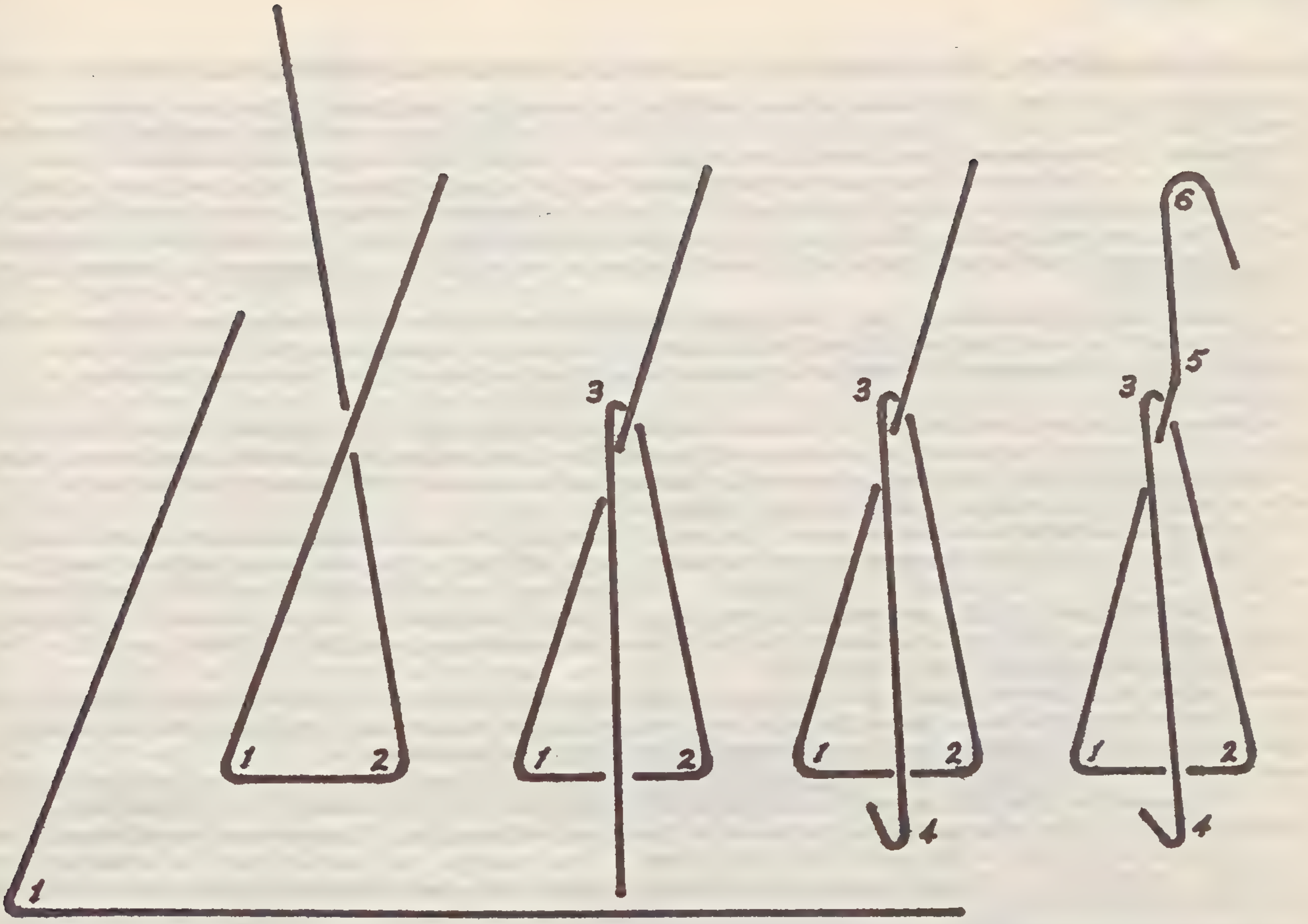
W.H. Murdoch

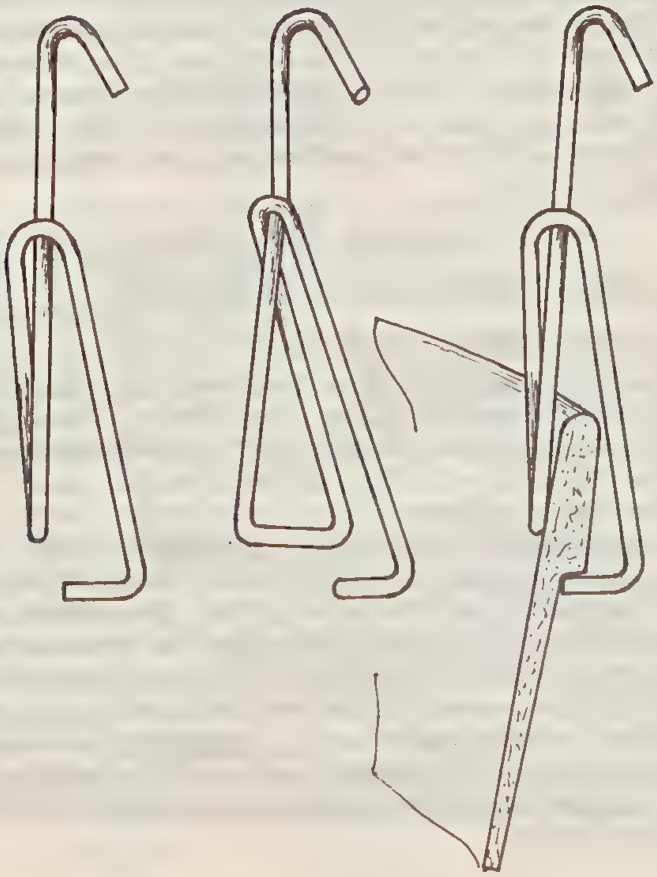
The answer to this question is by no means unanimous, but I stand with those who's condemnation of an anomaly, and I hope to convince you it is an anomaly, is emphatic.

Those in favour advance many reasons for their retention: "They are traditional, and as such should not be discarded". They serve as a means of identification for - shall we say - learners". "It is common practice for most things to have more than one name, so why claim that common names as applied to our native orchids are an anomaly?"

One fact that most are anxious to overlook, is that the common names are in fact not common names, but have been devised by someone writing an article aimed at the selling market, and feeling it necessary to be so fully informed on all things, on coming to a void does not hesitate to fabricate a name. A classical example of this is found in a publication, by a noted Botanist, mark you, who gave a "common" name to a plant that has only been recorded twice, the last time over fifty years ago. This instance is well recognised, but the question is, how often has this been done? But enough of this, let us have a closer look at the "reasons".

continued page 118.


1
1
2
3
1
2
3
1
2
4
6
5
3
1
2
4



Have Common Names, When Applied To Our Native Orchids, Any Justification ? Contd.

Admittedly we can find a few names that could be regarded as traditional. The best known is possibly the "Rock Lily". Some records in the 1840's use the name, with its botanical name in parenthesis. From the earliest times, any mention of "Rock Lily" is generally followed by the explanation - to the lesser informed we presume - that it is actually not a Lily, but an Orchid. If this stopped there it would be bad enough, but see what happens when we move to our Northern State. There we hear of the "King" orchid. As this is a new one for us, we find it does not refer to D. kingianum, but to the "Rock Lily", and of course we recall D. kingianum has been dubbed "Pink Rock Lily".

"As a means of identification" etc. Well name me a dozen that would by its appropriatness really identify an orchid to a learner. Now I said a dozen, and as we have about 800 "Natives" in Australia, all in process of having other names tacked on to them, can confusion be worse confounded?

Here we come to another thought. It is not somewhat inconsiderate, (and harsher terms can be applied), to suggest we encourage the use of a simpler name rather than its botanical one, when talking to someone who may not be as well informed as ourselves? At its best, a species of baby talk and at its worst, downright bad manners.

Let us have a glimpse at a few of these "common" names. I recently noted that one show entry labelled "Windmill" orchid was promptly altered by the steward. The same orchid has been referred to as the "Aeroplane", the "Spider", and the - yes - the "Bow tie" orchid. I will leave you to work that one out for yourself. A few more? The "Cascade", "Cocky's comb", "Lady's finger", are a few, but I am regularly rocked by someone asking about the "Golden" orchid. Possibly someone could help me in this?

Names alter in different localities, and any list attempted (and here is a distressing thought) some such attempt is mentioned, would have to be complete to be in any way justified, and the space consumed, and its ultimate cost could possibly call for a second look.

Several names would not be used. Liparis reflexa is known by several names we do not normally use. Of course the "Bard of Avon" got by with his reference to "Dog stones" and "Deadmans fingers", but we can only guess as to which orchids he referred to. Times have not altered. As to more than one name being given the same plant. True enough, as horticulture is noted by its confusion. Both horticultural names and botanical names are used. The difference here is that one plant may be known by half a dozen different horticultural names, but only ONE botanical name, which is, in fact, designed to carry world wide identification.

As noted at the commencement of this screed, it is a matter of opinion. What is your opinion? This matter if of sufficient importance for you to become articulate.

With the Australasian Native Orchid Society becoming more and more recognised as an authoritative body, and our publication, The "Orchadian" gaining a world-wide reputation as a reliable contribution to pure botany, can we be indifferent to the unnecessary confusion of the pretty names, which lack clarity, add to the confusion, and can fairly be placed at the door of the scribbler, or at best, the lazy minded.

W.H. Murdoch, Robey Road, Coal Point. Toronto. N.S.W. 2283.

A NEW NAME FOR A WESTERN AUSTRALIAN CALADENIA

S.C. Clemesha

Caladenia gemmata Lindl., forma lutea Clemesha forma nov.

Syn. Caladenia ixioides Lindl., Edward's Bot. Register 25: Swan R. App. 52 (1839)
Caladenia gemmata Lindl., Swan R. App. 52 (1839), var. ixioides R. Erickson in "Orchids of the West" p. 97 (1951) and R. Erickson "Orchids of the West" 2 nd. Ed. p. 90 (1965).

Forma typica speciei floribus flavis differt.

This plant differs only from the typical form of C. gemmata Lindl. in having yellow flowers. Those of C. gemmata forma gemmata are blue or sometimes white. Dissatisfaction with Lindley's treatment of this plant first appeared in 1951 when Mrs. Erickson published it as a variety of C. gemmata in "Orchids of the West". As this description was not accompanied by a Latin one, it is not valid. To the writer's knowledge no legitimate description of this plant as a variety or form has been published and as this plant is only a colour form of C. gemmata and the name "ixioides" is not appropriate the treatment of this plant as C. gemmata forma lutea is considered desirable. This form is common in some areas of the wide range of C. gemmata. I would like to express my thanks to Mr. J.H. Willis, the National Herbarium at Melbourne for help with providing information and the Latin description.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W. 2138.

BARON von MUELLER, 1825 - 1896

Allan G. Reeves

Ferdinand Jakob Heinrich Mueller, perhaps better known as Baron von Mueller, was born in Rostock, Germany, on 30th June, 1825.

The young Ferdinand was educated at Schleswig, and later trained as a pharmaceutical chemist. At the age of 21 he gained a Doctorate in Philosophy at the University of Kiel.

During these early years he lost his father, mother and one sister to the dreaded disease, consumption (Tuberculosis) and being of indifferent health himself, when the opportunity arose to go to Australia he siezed it for the sake of his health and his interest in botany. He arrived in South Australia in 1847 with his two sisters.

Due to Mueller's contributions to the Kew Gardens, London, on the flora of the Adelaide area, in January 1853 he was appointed to the post of Government Botanist for the State of Victoria by Governor Latrobe. At first his duties were purely scientific, thus enabling him to devote all his time to botany. He held this post until 1896. During this period he was made Director of the Botanical Gardens, Melbourne, from 1857 to 1873. He became a naturalised Australian and his naturalisation certificate is preserved in the National Herbarium, Melbourne.

During his first ten years as Government Botanist he made many exploring trips alone and with expeditions. One such expedition was to search for signs of the missing explorer, Leichhardt, and Mueller accompanied the expedition as party botanist. He was an active member of the committee for the ill fated Burke and Wills expedition in 1860, providing invaluable help and advice in organising and outfitting the expedition.

A noted author as well as an eminent administrator, geographer and botanist, Mueller's most noted work was probably "Flora Australiensis", written in collaboration with George Bentham, which contained the first complete account, among other native flora, of Australian orchids. It is believed he classified over 70 Australian orchids, many his own discoveries, and named many New Guinea and New Zealand species as well. The Australian native orchids he named include such well known species as Bulbophyllum minutissimum, Dendrobium gracilicaule, D. monophyllum, Sarcochilus ceciliae, S. fitzgeraldii, S. hartmanii and S. hillii.

Sir William Hooker, Dr. Joseph Hooker and William Bentham, three of the most eminent botanists of the 19th century, interested in the flora of Australia, corresponded with Mueller for over 40 years.

In 1856, in recognition of his works, Rostock University, Germany, conferred on Mueller, Doctor of Medicine, honoris causa. In 1863 he was made Knight of the Legion of Honour by Napoleon III, and in 1871 he was created Baron of the Kingdom of Wurtemburg, awarded British Knighthood of K.C.M.G. in 1879. He also received the Royal Society's Medal in 1888 for the "first great botanical collection formed in the Southern Hemisphere and the future centre of all scientific work on the Australian Flora".

Baron von Mueller died in Melbourne on 9th October, 1896 at the age of 71.

Some 50 years later, in September, 1948, the Baron was honoured by the Commonwealth Government, with the issue of a special postage stamp, taken from a late portrait.

Allan G. Reeves, 72 Renway Avenue, Lugarno. N.S.W. 2210.

Saprophytic Orchids Of Australia and New Zealand. Contd.

The Genera Dipodium, Galeola and Their Allies.

The rather small genus Yoania is distributed from Japan to New Zealand but with some considerable gaps in between. The genus is allied to Galeola and Y. australis like most if not all of the genus is saprophytic. It also, is not closely related to any other species in the genus. It has no sticker roots like Galeola and does not climb as it has a stem which supports it.

Yoania australis E.D. Hatch, Trans. Roy. Soc. N.Z. 2: Pl. 85. (1963) (name meaning southern) has a branching rhizome and a rather stout hairy stem bearing 4 to 5 bracts and 3 to 5 strange, not widely opening flowers. Mr. E.D. Hatch in notes sent to the author for inclusion in a check list of Australian and New Zealand orchids states, "Miss Ella Campbell (who has studied the fungus relationships of New Zealand's saprophytic orchids) has established so far that Yoania australis is connected as an epiparasite to Beilschmeidia taraire (a New Zealand tree) - the fungus has not as yet been isolated but the hyphae (fungus cells) both penetrate the roots of B. taraire, and swarm round and penetrate the rhizome of the orchid". Thus food from B. taraire is transmitted to the orchid via the fungus. The orchid grows in leaf mould of B. taraire and this doubtlessly contributes to the nutrition of it and development of the fungus. Yoania australis is found in two localities in the North Auckland Peninsula It flowers in January.

To be continued -

POLLINATION OF SPICULEA HUNTIANA (F. Muell.) Schltr.

E.R. Rotherham

First discovered in New South Wales by Ferdinand von Mueller and described as Drakaea huntiana in the Victorian Naturalist 8: 174 (1889) this orchid was renamed Spiculea huntiana in 1921.

Fifty years ago in 1917, A.B. Braine discovered the first Victorian specimen of Spiculea huntiana in the Cravensville district of north eastern Victoria. For a number of years this remained the only known Victorian locality of this orchid. However, by the late 1940's the range of the orchid had been considerably extended, and it was recognised as being widespread in many of the peppermint, stringybark-messmate forest areas, and in the alpine and sub-alpine areas of the state and was in some areas often locally abundant.

In January this year I located in the Kinglake area of Victoria the first of these curious and bizarre orchids that I had seen. As it was almost dusk and too late to successfully secure photographs, two plants with their associated earth were collected to be examined and photographed in the ensuing weeks.

On the morning of January 10th, an insect was observed to visit one of the flowers but as this was some distance away it was impossible to see if pollination took place, or to identify the insect. On examination, the pollinia of two of the flowers were seen to be missing but this had not been checked before.

Unknown at this stage was the fact that Mr. Swaby had suggested in the Victorian Naturalist of December 1949, that the possible pollinating insect for the "Elbow Orchid" be watched for. A considerable feeling of disappointment that the insect had not been more closely observed did exist, though at that time no thought that this was possibly a first observation existed.

At 4 pm. on the afternoon of January 10th, some photographs had been taken of the flower head of the orchid, and with the film almost finished it was decided to secure a reasonable close-up picture of a single flower and its ornate labellum. The camera was focused, but the gusty wind blowing had set the labellum into a violent swinging motion. The electronic flash was being held at the selected distance waiting for a lull in the wind and the subsequent stilling of the movement. Viewing was through the camera lens - suddenly an insect was present. The camera was fired, rewound and fired again, the insect still hanging onto the labellum. Then as anticipated the film finished. Fortunately a second camera loaded with a previously untried colour film was immediately available, the cameras were interposed and one further photgraph secured. As things eventuated this last picture though slightly under exposed was the best, and from it the accompanying drawing was made. The other two pictures show the insect with its abdomen pressed close against the labellum and the pollinia deposited on the back of the thorax. The flower was kept under observation and the ovary started to develop. On January 29th, nineteen days after the visit of the insect, the ovary ripened and seed was present.

One interesting point of this observation is that, did the insect visiting the flower already have the pollinia of a second orchid present? If so, and it would appear necessary for pollination, was it the same insect observed earlier in the morning - this is extremely unlikely or does it indicate that Spiculea huntiana is growing (as yet un-recorded) in the Warrandyte area?

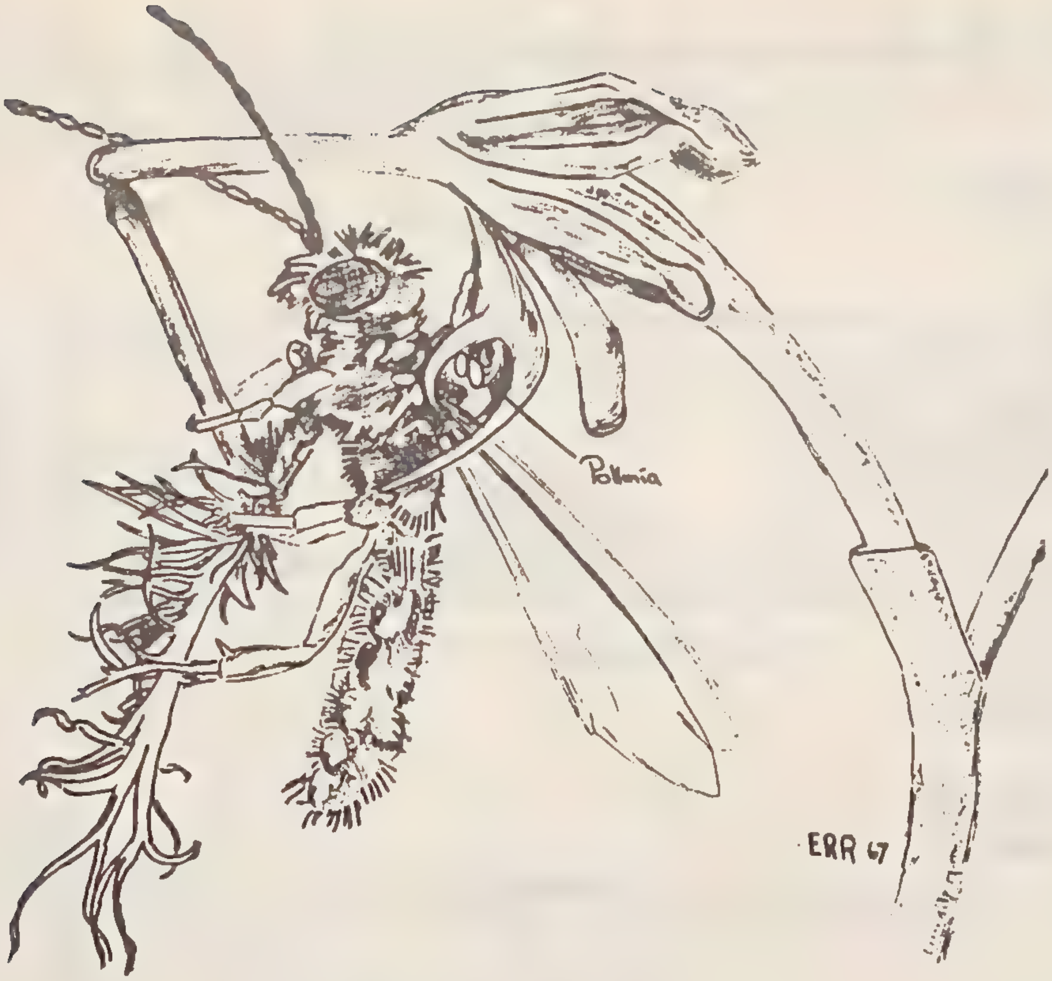
The insect that pollinated the orchid discussed has been identified as a male Flower Wasp of the Family Thynnidea and of the Rhagigaster genera. This is essentially an Australian family of wasps, species of which are frequently seen on hot days visiting tea tree blossom and other native flowers. The female wasps are entirely wingless and the male wasp seeks them out. Mating takes place during flight, with the male wasp carrying the female which attaches herself to his abdomen. When fertilised, the female drops to the ground and burrows into the earth in search of a Scarab beetle grub on which to lay her eggs.

It appears that the pollination process of the "Elbow Orchid" by the Flower Wasp is achieved in the following sequence.

The wasp grasps the insectiform labellum with its head near the glands at the top of the labellum. The momentum of the insect landing on the hinged labellum causes the insect to be swung up towards the column as though on a pendulum and the thorax of the wasp is directed between the claw like appendages of the column and thus into contact with the pollinia, which then adheres to the back of the wasps thorax. The fertilisation procedure observed occurred on a day of gusty wind but even so the insect was associated with the orchid for a period of 6 - 8 seconds before being blown free or flying away.

References: Victorian Naturalist Vol. 8, p. 174, F. von Mueller.
Victorian Naturalist Vol. 64, pp. 246-7, J.R. Garnet & W.H. Nicholls.
Victorian Naturalist Vol. 66, p. 142, A.J. Swaby.
Victorian Naturalist Vol. 70, p. 71, W.L. Williams.
Orchids of the West, Rica Erickson.
Victorian Native Orchids Vol. 1, C.E. Gray.
The Orchids of Victoria, E.E. Pescott.
Plants of Victoria Vol. 1, J.H. Willis.

E.R. Rotherham, Tills Drive, Warrandyte. Victoria.



Drawn from photograph approx. 6X

Fertilisation of *Spiculea huntiana* (F. Muell.) Schltr. by male Flower Wasp. Family *Thynnidae* gen. *Rhagigaster,* observed and photographed at Warrandyte, Victoria, 10/1/67

CULTIVATION OF DENDROBIUM KINGIANUM Bidw.

Chas M. Taylor

In common with most orchids, much has been spoken and written in connection with their cultivation, but the success or otherwise of our efforts depends for a very large degree on locality, light, watering etc.

In my opinion good light is necessary if we are going to get good strong plants and flowers. This can be well illustrated by those of us who have seen them growing in their natural habitat.

A few years ago I saw a clump probably 100 feet across, just north of Lismore, growing on a rock outcrop, those in the centre were short thick pseudobulbs with good flower heads, on the edge of the clump almost under the bushes the pseudobulbs were long and slender with little evidence of flowers. Small samples taken from different places in the clump are now producing pseudobulbs much nearer uniform size and length. This showed to my satisfaction that the plants in the centre of the clump were grown hard, hence the short pseudobulbs and being exposed to almost full sun, flowered well.

Those on the edge were certainly getting more nutriment and water but lacking sufficient light, hence the thin pseudobulbs and few flowers.

The question of manuring or not is a big question, some growers use organic, others inorganic, while we find the one who uses no fertiliser. The use or otherwise of manure depends very largely on the position in which your plant is grown, if in full sun or very good light, a plant (not necessarily an orchid) can absorb a good deal more manure and use same in its development than a similar plant in poor light. Good light for many orchids is almost as important as heat as it enables them to absorb the nutriment available.

A good healthy *Dendrobium* is one that does not have a large number of aerials, they are nature's way of reproducing when the root system of the plant is not of the best.

Chas M. Taylor, 39 Addison Avenue, Roseville. N.S.W. 2069

The Flowering Periods of Australian and New Zealand Orchids - Section 2. Queensland. Contd.

E.G. Gordon

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dendrobium ruppianum												
var. blackburnii							X	X	X	X	X	
schneiderae		X	X	X								
smilliae								X	X	X	X	
speciosum												
var. speciosum								X	X	X		
var. curvicaule								X	X	X		
var. hillii								X	X	X		
forma bancroftianum								X	X	X		
forma grandiflorum								X	X	X		
var. nitidum								X	X	X		
stuartii	X	X										
superbiens		X	X	X	X	X						
tenuissimum												
teretifolium												
var. teretifolium												
var. aureum												
var. fasciculatum							X	X	X	X	X	
tetragonum												
var. tetragonum					X	X	X	X	X			
var. hayesianum					X	X	X	X	X			
var. giganteum					X	X	X	X	X			
torresae	Almost any month											
tofftii							X	X	X			
wassellii					X	X						
wilkianum								X	X	X		
vinicolor	X	X	X	X	X	X						
Diplocaulabium glabrum	Almost any month											
masonii											X	
Dipodium ensifolium	X									X	X	X
punctatum	X	X									X	X
hamiltonianum	X	X								X	X	X
Diuris abbreviata									X	X	X	
aurea								X	X	X	X	
maculata							X	X	X	X	X	
pallens								X	X	X	X	
punctata												
var. punctata									X	X	X	X
var. alba									X	X	X	X
forma blakneyae									X	X	X	
var. minor									X	X	X	X
var. parvipetala									X	X	X	
sulphurea									X	X	X	X
Drymoanthus minutus	X	X										X
Ephemera convexa	Almost any month											
Epipogum roseum	X	X	X									X
Eria eriaeoides								X	X	X		
fitzalani								X	X	X		
irukandjiana									X	X	X	
inornata								X	X	X		
intermedia										X	X	X
queenslandica								X	X	X		
Eriochilus cucullatus		X	X	X	X							
Eulophia agrostophylla					X	X	X					
venosa var. venosa										X	X	
fitzalani												X
carrii	X	X										
Galeola cassythoides									X	X		
foliata	X										X	X
Gastrodia queenslandica	X											X
sesamoides	X										X	X

THE ORCHADIAN

JANUARY, 1968 PRICE: 30 cents PAGE: 123
VOL. 2 No. 10

Published by The Australasian Native Orchid Society

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
20 FEB 1968

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: J.H. Scott
R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

Registered at the G.P.O. Sydney, for transmission by post as a periodical

BACK ISSUES - THE ORCHADIAN

Back issues of all numbers of The Orchadian are freely available at 40 cents each. A brief note to our hard working Secretary at the Society's post box, together with your cheque or postal order will receive prompt attention.
Bound copies of Vol. 1. No. 1 - 12 are also available from stock at $6.60.

AUSTRALIAN SARCANTHINAE.

A Review of the Subtribe Sarcanthinae (Orchidaceae) In Australia and New Zealand. By A. W. Dockrill.

The long awaited and much enlarged review is now available following its publication on September 19th 1967. This book has been edited by our President Eric Gordon and is the result of some two years of extremely hard work for Eric and the Author, Alick Dockrill,. who spent many long hours in producing his superlative drawings which are contained in the back of this book.
The definitive text covers the following genera; Phalaenopsis Bl., Luisia Gaud., Vanda Jones, Robiquetia Gaud., Saccolabium Bl., Taeniophyllum Bl., Chiloschista Lindl., Rhinerrhiza Rupp,. Sarcochilus R. Br., Parasarcochilus Dockr., Mobilabium Rupp, Peristeranthus T.E.Hunt, Camarotis Lindl., Thrixspermum Lour., Plectorrhiza Dockr., Pomatocalpa Breda, Schistotylus Dockr., Saccolabiopsis J. J. Sm., Schoenorchis Reinw., Papillilabium Dockr., Drymoanthus W. H. Nich.
The book has been designed for ease in use and contains a key to the Australian genera of Sarcanthinae. List of excluded species and varieties, Index to the plates, Index to the species. The text covers 41 pages of this large 9.^{7}/8 x 7.^{5}/8" book and full page drawings of each of the 43 species depicted. All members of the Society and in fact all orchid workers will need this easy to read reference work. Remember this is a publication of your Society, so buy a copy now, show it to your orchid acquaintances and urge them to purchase a copy. The success of this venture will hasten the publication of further works on Australian orchids by your Society.
Australian Sarcanthinae by A. W. Dockrill, with Foreword by Dr. R.E.Holttum of Kew.pp. 88, with 43 plates, 9^{7}/8" x 7^{5}/8", red cloth, (Sydney, 19-9-'67). To members $4.50 including postage and mailer. Retail price $6.00.
Forward your order with address clearly marked, together with your cheque, to The Australasian Native Orchid Society, P.O. Box 106 C. Clarence Street, Sydney, for prompt attention.

MEMBERSHIP RENEWAL

Members are reminded that subscriptions to The Australasian Native Orchid Society for the financial year 1967-8 are overdue. Subscriptions to the Society fall due on the 1st July of each year. If you have not, as yet, forwarded your subscription, get a cheque in the next mail to The Australasian Native Orchid Society, P.O. Box 106 C, Clarence Street, SYDNEY. 2000.

THE PRESIDENT'S REPORT

In presenting this, my first report to the members, of the activities and state of our Society, I must first of all thank my fellow Councillors for their assistance and guidance during the twelve month period just concluded. Twelve meetings of the Council were held during this period and the purposes such as collating and enveloping (to coin a word) copies of The Orchadian, checking list of members and their addresses etc..

The members of the Council attended normal Council meetings as follows:

E. Gordon 12, W.H. Murdoch 12, J. Scott 9, R. Napier 8, A. Reeves 11, M. Corrigan 12, E. Marygold 11, R. Curtis 7, S.C. Clemesha 7, H. Jay 11.

Five copies of The Orchadian were published during the period and I would like to take this opportunity of pointing out what a wonderful job our Editor Murray Corrigan is doing and to thank him for a very difficult job well carried out. There has been some comment that The Orchadian is too technical! This is largely a matter of point of view and what one member considers too technical is considered too popular by another. Our Editor is making every effort to incorporate more articles of popular interest but he is faced with the fact that the contributors who provide most of the subject matter are more interested in the technical aspect of our Orchids than in the aspects that are of interest to the member who is mainly interested in cultivating some of our wonderful orchids for their beauty alone.

The supply of subject matter for The Orchadian is barely sufficient to keep the journal going so I take this opportunity of appealing to members to send to the Editor any items thay they may feel would be of interest to other members.

During the period of my office the Council has carried out some advertising in a nationally known gardening monthly and we feel that this has brought in a gratifying number of new members.

The development of the groups has been very good, and I am pleased to be able to report that the youngest group, Newcastle, is about to start on a programme of "flasking" and we are all looking forward to some very interesting results from this move. Sydney and Warringah groups have also progressed well and some very interesting specimens have been seen at their meetings and some very informative lectures and slide shows have been enjoyed by the members.

The paper and slides presented on our behalf at the 5th World Orchid Conference by Dr. Keith Kirkland have been loaned to a number of interested people both in Australia and the U.S.A.

In the field of increasing the knowledge of our orchids I am pleased to report that the Society's publication "Australasian Sarcanthinae" will be published on the 19th September and I hope that every member will become the proud owner of a copy of Alick Dockrill's splendid and informative work.

Total membership of the Society is now 380 and I hope that every member will make an effort to see that the membership is considerably greater by the time I make my next Annual Report.

In conclusion I thank you all for your support and wish you a very successful year with your orchids.

Eric G. Gordon.

THE ORCHIDS OF KING ISLAND.

Mrs. P.M. Barnett.

The following is a list of native orchids recorded from King Island. Two of these, Sarcochilus australis and Diuris pedunculata have not yet been recorded by me.

Sarcochilus australis
Thelymitra aristata
Thelymitra ixioides
Thelymitra flexuosa
Thelymitra venosa
Thelymitra grandiflora
Thelymitra retecta
Gastrodia sesamoides
Calochilus robertsonii
Calochilus campestris
Calochilus paludosus
Lyperanthus nigricans
Burnettia cuneata
Calochilus saprophyticus
Diuris pedunculata
Diuris longifolia
Cryptostylis subulata
Eriochilus cucullatus
Prasophyllum nigricans
Prasophyllum archerii
Prasophyllum australe
Chiloglottis cornuta
Microtis uniflora
Acianthus reniformis
Acianthus caudatus
Acianthus exsertus
Caladenia menziesii
Caladenia latifolia
Caladenia carnea
Caladenia dilatata
Pterostylis barbata
Pterostylis cucullata
Pterostylis pedunculata
Pterostylis nutans
Pterostylis longifolia
Pterostylis foliata
Glossodia major
Corybas dilatatus

Mrs. P.M. Barnett, Priv. Bag 111, Currie, King Island, via Melbourne.

CONSERVATION

SAPROPHYTIC ORCHIDS OF AUSTRALIA & NEW ZEALAND

continued from Vol. 2. No. 9.

S. C. Clemesha.

Some Widespread Genera and Some Plants that Disperse their Seeds Within a Few Days of Flowering.

The genus Gastrodia is wholly saprophytic and to the author's knowledge none of its species carry any chlorophyll. About 15 species occur, distributed from the Himalayas to Japan. and through Malaysia and Indonesia to Australia and New Zealand. One Australian species has appeared in South Africa. Some Malayan species and to a certain extent G. queenslandica produce stems which elongate considerably after flowering as in Corybas and Chiloglottis.

Gastrodia sesamoides R. Br. Prodr. (1810), 330 (name meaning, like Sesame)grows from a large grubby looking brown and white tuber which is smooth at flowering time at least. It produces a stem bearing brown and white bell shaped flowers, the segments of which are united for the greater part of their length. It commonly is 1 to 2 feet high but at Barrington Tops N. S. W. it often reaches 5 feet and more. The species grows in all states though it is uncommon in W. A. and restricted to southern Queensland. In New Zealand this plant is found on the two main islands.

G. sesamoides grows in Eucalyptus plantations in South Africa where presumably it has been accidentally introduced. Recently its tubers have been reported to contain highly poisonous substances. Miss Ella Campbell who has studied the fungus relationship of saprophytic orchids in New Zealand has found it to be associated with the bracket fungus Fomes. Miss Campbell confirms for New Zealand the association with nitrogen fixing bacteria (two types of these occur - free living and those which live in the roots of clovers, peas etc. and assist these plants to change the nitrogen in the air to a form the plants can use). Further details of this can be found in Trans. Roy. Soc. N. Z. 2:18. p. 237. 1964. G. sesamoides flowers in summer.

G. cunninghamii Hook. f. Flor Nov. Zel. 1:p. 251 (1953) (named after Alan Cunningham an early botanist) is a self pollinating species from New Zealand where it grows in Nothofagus (beech) forests in association with the fungus Armillaria - see paper by Ella Campbell Trans. Roy. Soc. N. Z. 1:24 p. 289 (1962). It occurs in both North & South Islands, Stewart & Chatham Islands.

G. minor Petrie Trans. N Z. Inst. 25: p. 273. Tab. 20. (1893) seems to have developed from a process of all round degeneration from G. cunninghamii and its name means lesser or minor referring to its smaller stature. Its habit is less robust, the flowers are smaller and fewer and the self pollinating mechanism is less forceful though just as effective. It is quite constant throughout its range - from the centre of New Zealand's North Island to the south of the South Island and though it is sometimes associated with G. cunninghamii self pollination is an effective barrier against hybridisation. Miss Campbell discusses the nutrition of this orchid in Trans. Roy. Soc. N. Z. 2:6. p. 73 (1963). It was associated with Leptospermum scoparium and while the fungus was not identified enough of it was isolated to prove it was not an Armillaria,the type that is associated with G. cunninghamii.

Gastrodia queenslandica Dockrill, Nth. Qld. Nat. Vol. 32(Sept. 1964)p. 136:6 - 8, is entirely different to the species of the genus discussed so far and it is closely allied to species of the genus occurring in New Guinea. Its 6" high stem grows from a small tuber. It emerges through the rain forest floor and opens its normally single flower in December or January, after the first rains of northern Queensland's wet season. The very brief lasting flower is self pollinating and rapidly produces a seed pod. Soon after the seeds are dispersed the frail brittle stem breaks and falls. From emergence through the ground, to seed dispersal takes about one week. It is probable that this little orchid is monocarpic - flowering and fruiting but once before dying and equally probable that it reaches maturity in 1 year. It is confined to northern Queensland where it is common on the floor of some rain forests between the Russell and Bloomfield Rivers, but for obvious reasons it is seldom seen.

The genus Didymoplexis is a small one distributed from India through Malaysia to New Caledonia, Fiji and Australia. The genus is closely allied to Gastrodia and like them it is wholly saprophytic. It produces bell shaped flowers which have their segments fused at the base. However, the petals of these orchids are joined for about half their length to the dorsal sepal but only slightly to the lateral sepals, unlike Gastrodia where the petals are joined equally to both segments. The stigma of the genus Didymoplexis is near the top of the column where that of Gastrodia is at the base. The pedicel or flower stalk of this plant which is very short at flowering time elongates considerably after flowering as in Corybas and Chiloglottis with the result that seed capsules are easier to find than flowers.

Didymoplexis pallens Griff., Calc. Journ. Nat. Hist. 4:383, t, 17(1844) (name meaning pale in colour) has a rhizome up to 8 cm. long and erect stems about 5 - 12 cm. high which bear few pale brown-olive-pink flowers which are not unlike those of the Gastrodias and with segments united for part of their length as in that genus. It occurs in lowland forests and though chiefly an Indian to Indonesian species it has been recorded from the Northern Territory.

The genus Aphyllorchis (name meaning leafless orchid) contains about 14 species and extends from India through Malaysia to New Guinea and North Queensland. The two Australian species were discovered quite recently.

continued page 126.

Saprophytic Orchids of Australia & New Zealand. continued

Some Widespread Genera and Some Plants that Disperse their Seeds Within a Few Days of Flowering.

This genus also, is wholly saprophytic.

Aphyllorchis anomala Dockrill, The Orchadian, Vol. 1. No. 10. p. 116 (Feb. 1965)(name meaning, not normal - referring to the base of the labellum which differs from the rest of the genus).

This plant is known only from the type locality - Davies Creek in the northern Queensland highlands, but almost certainly will be found elsewhere. This brittle, erect plant grows to about 55 cm. tall and has a flowering habit similar to that of the Dipodium spp. The roots also are similar but shorter. The flowers are white with purple striations and purple outlined sepals.

A. queenslandica Dockrill, The Orchadian, Vol. 1. No. 10. p. 115 (Feb. 1965). The roots of this species are rigid, short, unbranched and well described as bottle-brush-like, though individually almost as thick as those of Dipodium punctatum. The 6 to 12 flowers are pale dull yellow and like those of the preceeding species, not widely expanding.

The genus Eulophia reaches its best development in Africa where many beautiful species occur and some of these can be readily cultivated. The genus also occurs in Asia, through Indonesia to northern Australia to the Pacific Islands and the Americas between Argentina and Florida. Many species including some of the Australian ones grow in areas with a marked wet and dry season.

There are 4 species in Australia and 2 of these - E. agrostophylla F. M. Bail. and E. venosa Reichb. f. are leafless at flowering time but leaves appear later on a separate stem and these plants are not saprophytic in common with most species of the genus, but E. zolleringeri (Reichb. f.) J. J. S. occurring from India through Malaysia and Indonesia to New Guinea is saprophytic and possibly additional species in other countries are saprophytic but the author has little information on them.

The rare E. fitzalanii F. Muell., Fragm. 8:30 (1873) as far as is known is a leafless saprophyte but this fact has yet to be proved. It grows to 40 cm. high and produces at least 18 widely expanding flowers which are almost an inch across and pale green or whitish outside with the ends of the sepals and petals dusted with deep red or purple and the lateral lobes of the labellum containing a few veins of the same colour. It is found in north eastern Queensland between the Fitzroy and Tully Rivers. It flowers in September and October.

Eulophia carrii C. T. White, Proc. Roy. Soc. Qld. 47:82 (1936) is definitely saprophytic and needs, or at least prefers wood at a certain stage of decomposition for its growth as does Galeola foliata. The man after whom it was named, was a collector of orchids in northern Queensland who also had Dendrobium carrii named after him.

Eulophia carrii has a thick, tuberous rhizome from which rather short roots grow. In this way it is unusual as most saprophytic orchids have either a thick rhizome or a root system and this is one of the few with both. Its rather stout stem grows up to 90 cm. high and bears up to 40 flowers which are about 7.5 c.m. across and deep burgundy red or brownish as are those of E. zollingeri.

E. carrii is found in the south east of Cape York Peninsula, the Atherton Tableland and the tableland behind the South Mossman River and it flowers from December to February.

The wholly saprophytic genus Epipogum has only two species but they are very widely distributed.

E. aphylla (F. W. Schmidt) S. W., is a delicate, slender plant which grows among dead leaves and is the same colour as them and is found in England, southward to the Pyrenees, central Italy and the northern Balkans, in central and northern Europe, northwards almost to the arctic circle and eastwards across Asia to Japan and the Himalayas, but is rare and hard to see.

Epipogum roseum (D. Don) Lindl. in Journ. Linn. Soc. 1 (1857)(name meaning coloured, but somewhat a misnomer as far as Australian specimens of it are concerned) grows from a thick, fleshy, often coral-like branching rhizome. The stem is thick and scaly and up to 24 cm. high. It is either erect or bent over at the top as in Geodorum pictum (R. Br.) Lindl. The flowers of Epipogum roseum are dull white and sometimes stained with pink.

Like Gastrodia queenslandica, this plant comes up, flowers, sets and disperses its seed within a few days. The pollen comes in contact with the stigma 1 or 2 days before the flowers open and on the third or fourth day after the flower opens the seeds are scattered. The seeds are among the lightest of all orchids consisting of 8 cells only and it takes ten million of them to weigh 1 gramme. The very short life of the flower is the reason why this plant is so seldom found and probably the very light seeds have allowed it to become so widespread like its Asian and European ally. It has been found in N. S. W. (only at Tweed River) southern Queensland and the highlands of northern Queensland where it is more common than in the south. It is also found in Malaya, India and Africa and doubtlessly will turn up in New Guinea and probably the more mountainous parts of Indonesia.

The genus Cryptostylis is found in northern India, Ceylon, Malaya, Fiji, Formosa, New Guinea, New Caledonia and Australia. About 20 species are known, 5 of which are endemic to Australia and one of these to Western Australia.

continued page 127.

Saprophytic Orchids of Australia & New Zealand. continued

Some Widespread Genera and Some Plants That Disperse Their Seeds Within a Few Days of Flowering.

The species in this genus are for the most part rather alike. They have spidery sepals and petals and an inverted labellum and very short column. The only significant point in which the species differ is in structure of the labellum. The species of this genus look saprophytic, if they happen to be leafless at flowering time, particularly if dug up, as their roots which are thick and fleshy compared to the size of the plant, look typically those of saprophytes but only one of Australia's 5 species is a saprophyte. All the others are easily cultivated.

The Cryptostylis species first became famous when Mrs. E. Coleman discovered that they are pollinated by male ichneumon wasps (Lissopimpla semipunctata). The flowers deceive the insects into thinking they are female wasps. A similar thing occurs in some species of Chiloglottis and in the British and European Ophrys species whose resemblance to the particular insect they deceive is remarkable.

Cryptostylis hunteriana Nicholls, in Vict. Nat. 54(1938), 182, t. 18., is a leafless plant with more erect flowers than are produced by the allied C. ovata R. Br. and C. subulata (Labill.) Rchb. f.. It lacks the large bilobed callus of those species and is covered with short fine hairs rather than being smooth and shiny. Like the other Australian species of the genus this plant flowers in summer and only opens a few of its numerous flowers at a time. It is very rare, being known only from the "grass tree plains" of extreme N.E. Victoria, near Pigeon House Mountains via Milton, where recently discovered by Mr. and Mrs. R.H. Fulton and family and the author. The species has also been found near Sydney in sandstone country. It is never numerous in any one area.

continued Vol. 2. No. 11.

CONSERVATION OF NATIVE ORCHIDS

W.H. Murdoch

The first Australian Orchid Conference was held in Brisbane from the 10th. to 15th. April 1967. In all, some 16 speakers were selected to speak on some aspect of orchid culture. Possibly because I had taken part in the foundation of the Australasian Native Orchid Society, the task of discussing "Conservation of Native Orchids" fell to me.

I had, perforce, to trace the wastage of our orchids from our forests and to comment on the little that was being done to combat it. The audience was gathered from our several States, and it was a matter of extreme gratification to me, to note how many of them, were in fact, members of A.N.O.S. Briefly summarised, I pointed out that the increasing interest in our orchids, both here and abroad had established a keen demand and wholesale gathering appears to be the order of the day. Huge quantities are finding their way into our chain stores and other purchasing places, under conditions that entirely preclude their chance of survivial. Indeed many plants require such expert knowledge and exact conditions for successful growing, that the sales amounts to nothing less than blatant exploitation.

To these unhappy conditions we must add the loss occasioned by forestry operations. This, in places, is considerable. Further again, we cannot but note the activities of orchid growers. Whilst they contribute something to the credit side, either by learning how to grow the plants, or, as it unfortunately so often happens, prove that they are not amenable to cultivation.

However, whatever angle we view the position from, we can only come to the conclusion that the loss is serious and does not appear to be a matter that can be corrected by legislation.

From time to time we hear of groups that, bouyed up with considerable enthusiasm and picnic hampers, decend on this, or that corner of the woods, to introduce Native Orchids. Let me not lose the good will of many friends by adversely commenting on these projects, but I am able to say that I know of no such places that have not received the attention of vandals and the workers reduced to the point of despair, and subsequent abandonment of the project.

Remote areas cease to be remote with the modern four-wheel drive vehicles. Timber and fire roads make access a matter of ease.

The ultimate in frustration must surely have been reached when we recall the experience of the Brisbane Botanical Gardens.

First of all however, might I mention that the State of Queensland conceived the idea of having a floral emblem. Its choice fell on Dendrobium bigibbum var. bigibbum, and in doing so condemned to extinction, many thousands of these plants. They have been exported in such quantities that areas once prolific with them are now denuded. Den. bigibbum var. bigibbum is not easy to grow when taken into cooler climes and the result can be imagined.

However, back to the Botanic Gardens. Quantities of Den. bigibbum var. bigibbum were introduced onto suitable growing mediums, one installment alone numbered 500. They were expertly handled and grew satisfactorily and flowered. Then came disaster. As they flowered they disappeared. Yes, taken from the trees, mostly, I am informed, when the attendants were at their meals. Certainly not during the night, as the Gardens are surrounded by substantial protection and are only open during the day.

Conservation of Native Orchids. cont.

This example, I contend, is an emphatic answer to the "reserve" theory, it also answers what I consider to be an entirely unstable approach by our conservation authorities.

My criticism may not be construed as holding the employees in any way responsible. Quite the reverse indeed. The point I wish to emphasise here, is that they, by virtue of their employment and like thousands of other garden and forest workers, may be designated as "Wardens". Let us examine this position. It appears that all States, in their legislation, rest heavily on the activities of "Wardens" for the policing of their conservation laws. They are of two kinds. Firstly, those already mentioned, i. e. employees of Governmental, or quasi Governmental bodies. Secondly, "Volunteer" Wardens, who are appointed by the appropriate authorities.

In the former group it would seem that to be designated as a Warden, would imply having additional duties allotted to them, other than their normal employment.

Is it necessary to follow this thought to its logical conclusion?

The second group have many difficulties to surmount. Despite their undoubted sincerity, the fact that their activities are in conflict with a well expressed antipathy to "Volunteer" law enforcement does not make their job a popular one.

The question of effective coverage must also be considered and this aspect must point the futility of accepting less, but not until we could have a Warden on every road, can we expect effective results. In the meantime we have to admit that despite Laws, Wardens and many unrealistic platitudes, we have our orchids leaving the forests in their many thousands.

Is there a solution?

It is the opinion of the Executive of the Australasian Native Orchid Society that an effective preliminary move would be to have the export of Native Orchids banned.

Secondly I have expressed the opinion for some time that nothing short of a vigorous policy of seedling raising can save orchids.

Who will undertake this task? In a small way and, shall we say, somewhat as a preliminary effort it may devolve on any band of enthusiasts. In fact it is already planned on these lines and the Newcastle Group of The Australasian Native Orchid Society, has undertaken to enter the lists.

Ultimately it should be the responsibility of the Government.

When seedlings can be made available without cost or even at a nominal price, then we may expect to see the urge of the collectors to rob our forests, a thing of the past.

It is coincidental that the Curator of our Zoo has been very insistent in saying in recent times, that to safeguard some of our more rare animals we must be prepared to breed them. The question is, is not the fate of our native orchids not also a matter of National importance?

W. H. Murdoch, 30 Robey Road, Coal Point. N. S. W. 2283

SOME INTERESTING CORRESPONDENCE.

Extract from a letter to the Society from R. C. Nash, 77 Coromandel Parade, Blackwood, S. A. 27. 1. 67.

"..... I would also like to report that on December the 28th. 1966 I found Thelymitra cyanea in N. S. W. about 15 miles from Braidwood near the road to Batemans Bay in swampy soil. This species was not growing with T. venosa as it has been reported to do but with Pterostylis falcata. I have pressed specimens from the above area in my Herbarium and have passed on material of the species T. cyanea to the C. S. I. R. O. Herbarium in Canberra A. C. T.

While travelling through the Blue Mts. a few days previous to the above mentioned date I found a Thelymitra species that I thought was T. circumsepta. When I compared the flowers of this plant with the illustrations in Nicholls, Orchids of Australia I consider that it is closer to the Victorian/ Tasmanian T. retecta. The flowers were of a bright blue colour not green as illustrated. I took 2 coloured photos of this plant but unfortunately as I was not using my reflex camera got just a little bit too close and spoilt the image of the columns in both cases. The big question now is, "is T. retecta related to T. circumsepta in any way?" Are they forms of the same species ? I found this plant in 2 areas about 2 to 3 miles apart in damp and swampy ground in the Clarence area. Again I have Herbarium material of this plant.

Another plant that is a bit rare that I have found is Dipodium punctatum var. hamiltonianum (I call it a variety of punctatum because that is all I think it is. If it is a species then we have a white form of D. punctatum in S. A. that should have a name to itself too). This orchid has been found in the A. C. T. (2 plants) and the Warrumbungle Ranges, N. S. W. (5 plants). In both cases the plants are identical with each other and flower a little earlier than the red D. punctatum. In the A. C. T. I have found red D. punctatum that have the same overall shape and size as the yellow form ......"

continued page 129.

Some Interesting Correspondence. continued.

Reply on behalf of the society from Steve Clemesha to Ray Nash.

"Your letter to the A.N.O.S. was handed to me to answer. You have found some interesting orchids in N.S.W. As you realise Thelymitra cyanea has not been found in N.S.W. before. It is now regarded as Thelymitra venosa var. cyanea (Lindl.) Hatch Trans. Roy. Soc. N.Z. Vol. 79. pts. 3-4, 391 (March 1952) by some modern botanists and from what little I know about it I think there is much to support this line. It occurs in N.Z. (north, south and Stewart Islands) as well as in Vic. and Tas. and now N.S.W.

The Thelymitra circumsepta - or T. retecta question is interesting. I would proceed very carefully before putting a Blue Mountains plant in T. retecta. The colour is not a deciding factor as according to Nicholl's plates both are green though one circumsepta is blue petalled. Colour as you realise is inconsistent in botany. I presume you are going on the absence of the fourth lobe in favouring T. retecta. This point is inconstant in T. circumsepta. See The Orchadian Vol. 2 No. 3. pp. 44-45. Here John Blackmore in his excellent article on T. circumsepta states, "Even in the original plate, FitzGerald noted that the tufts of hairs (i.e. on the 4th lobe - in the possession of which T. circumsepta is unique in the genus A.C.) at the apex may be missing, but both he and FitzGerald (printed in error for Nicholl's S.C.) illustrated the alternate shape as being tall and pointed. However, in my Mt. Victoria specimen and also P. Metcalf's New England ones, this lobe is found to be at times only a vestigial knob, in others a round mound and to assume various intermediate shapes and sizes up to the full pointed tufted lobe - which incidentally leads to the specific name circumsepta, 'with partitions all round'. Only the full sized lobe appears to bear the crowning tuft." He later states that some specimens from Mt. Victoria "possessed a lopsided vestigial lobe". I agree that the 2 species under discussion are similar in many points - particularly the column side view when the 4th lobe of circumsepta is ignored. They do seem to differ quite considerably in the front view though and also the back view. I would advise you to send a pressing of the plant to John Blackmore who should be able to sort the problem out.

Your record of Dipodium hamiltonianum from the A.C.T. is a southern record. I see your point about the similarity between it and D. punctatum but from the little of D. hamiltonianum I have seen the flowers were much larger and fewer, and the plant was shorter and more slender. Other differences according to Rupp, in Orchids of N.S.W. page 127 are the whole lamina of the mid-lobe of the labellum is "pubescent for nearly half its length from the apex" compared to D. punctatum which has only a pubescent keel. Rupp further claims that the column is longer than in D. punctatum and its wings "rather prominent". He omitted to describe their shape etc. though he did in D. punctatum where he did not state whether they were prominent or not.

In actual fact these differences are not great and a strong case could be presented for recognition of this plant as D. punctatum var. hamiltonianum (F.M. Bail.) F.M. Bail.

Bailey himself took this course of action on his own species - D. hamiltonianum F.M. Bail. but it has not generally been followed.

I would agree with the treatment of D. hamiltonianum as a variety of D. punctatum were it not for the nature of this genus as a whole. The flowers of the 2 saprophytic Australian species D. punctatum and D. hamiltonianum, 2 leafy terrestrial clump forming tropical species, D. ensifolium F. Muell, from Nth. Qld. and D. paludosum from Malaysia and Indonesia and epiphytic normally single stemmed D. parviflorum and D. pictum - both from Malaysia - Indonesia are all very similar. All bear spotted flowers the base colour of which is yellow or pink though unspotted forms of D. punctatum exist. The labellum shape of them all is also basically the same and all have pubescent labella to a varying degree. If we were to reduce any one of these it would be difficult to justify the separation of the others unless because of their habit of growth.

I was interested to learn there is a white form of D. punctatum in S.A., D. punctatum var. album F.M. Bail., Suppl., Synop. Qld. 3:73(1890) has been described from Qld. material (from Cleveland). I don't know whether it was a true white or merely a pale form though. I have never seen a white form in N.S.W. ...."

INTERESTING RECORDINGS FROM NEW SOUTH WALES.

S.C. Clemesha.

It is very seldom that an orchid is described from material collected on the Western Slopes of N.S.W. and then disappears for over 70 years, only to reappear on the North Coast. Such is the case of Diuris striata (FitzGerald) Rupp syn. D.spathulata FitzG. It was first described from material collected at Forbes in FitzGerald's Australian Orchids as D. spathulata FitzG. (not of Sw. (1805) in 1891 and was not seen againttill C.K. Ingram, B. Whitehead and the author discovered it a few miles south of Smokey Cape via Kempsey in September 1966.

continued page 130.

NORTH QUEENSLAND'S NEW TERRESTRIAL DENDROBIUM

I. D. Walters.

Dendrobium lobbii T. et B., Nat. Tijdschr. Ned. Ind. 5:491. 1853. Holttum, Flor. Malaya, 1:339-340. 1953.
D. calcaratum Lindl., Bot. Reg. 27:Misc. 89. 1840 (non A. Rich.).
Ridl., Flora 4:39.
D. conostalix Rchb., Walp. Ann. 6:292. 1861.

A terrestrial plant, with erect, slender, wiry stems up to 1 m. tall, with occasional stems a little longer. Leaves many, 2 - 3 cm. apart, stiff, straight, linear, up to 5 cm. long and 7 mm. wide, the longitudinal margins slightly down curled. Leaves unequally bilobed at the apex and lying close to stem except on new growths. Some short, fine, brown-black hairs on the leaf sheaths, but not dense, and only evident on recent and growing portion of leafy stems. Damaged stems branched, but rooted aerial plantlets not common.

Flowering nodes 2 -3 cm. apart, conspicuous, semi-circular. Flowers on short petioles, in pairs or singly, facing downward, on leafy stems only, occurring with green and ripe seed pods. Seed pods ovoid, to 12 mm. X 6 mm. on short petioles, with live flower segments persistent. Flowers up to 13 mm. long (mentum plus labellum) but variable. Lateral sepals including mentum up to 1 cm. long, 3 mm. wide at broadest point, blunt, with a small point at the apex. Mentum up to 5 mm. long, 2 mm. across and tapered at the end.

Dorsal sepal up to 5 mm. long, 4 mm. wide, somewhat rhombic in shape, with a blunt point. Petals narrow, about 1 mm. wide and up to 4.5 mm. long, slightly wider at middle and from there tapered to a slight point.

Labellum straight, white and fleshy, trilobate, the lateral lobes small, obliquely triangular, about 4 mm. long and about 1.5 mm. high at tip, erect. Mid-lobe orbicular, to 4 mm. diameter, the end notched, the notched margins up-curled and slightly in-curled to a varying extent. Three small, low, rounded keels extend from just inside spur to almost the end of the mid-lobe. The middle keel much smaller than the other keels and not as long.

Labellum joined to column foot to form a spur. Spur about 2 mm. wide and up to 2.5 mm. long. A slight ridge on the face of column extends from spur orifice to end of column foot. Spur contained in mentum, the lateral sepals joined to entire length of column foot. Column to 7 mm. long, 3 mm. wide at top, narrowing to about 2 mm. at the column foot. Column thick, straight. Column wings apical, as high as anther, the tips bluntly triangular. Anther about 1 X 1 X 1mm. in size, attached by a short (under 1 mm. long) filament to the top of the column. Anther divided into 2 cells by a thin membrane.

Pollinia 4, in two pairs, each pair close together forming a cleft ovoid mass somewhat resembling a wheat grain. Pollinia waxy, yellow. Stigma sub-deltoid in shape, viscid, inset slightly in the face of the column, but not deeply so, and situated beneath rostellum. Rostellum an erect platform, joined completely to column, the forward edge rounded and projecting only slightly from column. Rostellum almost circular.

Colour of sepals of fresh flowers a dull green-yellow, with light orange veining, distinct. The colour shading to a dull yellow with prominent orange veining on aging. Petals and dorsal sepal have similar colouring. Labellum white, the end composing the spur a green-yellow colour.

Distribution: Foot-hills of the Cardwell Range, growing in mulch and debris, continually wet, among marsh grass on the edges of running creeks. Found in the southern part of Malaysia, Sumatra and Borneo, growing in similar conditions.

The Australian form differs slightly in the plant, but conforms to the general description and drawing of the flower (Holttum, Flora of Malaya Vol. 1, 1953). The brown-black hairs on the leaf sheaths of the Malaysian form appear to be more pronounced than on the Australian form. The leaves are smaller in the Australian form and the stems are somewhat more robust than the Malaysian form. These characteristics definitely do not warrant the giving of a varietal name.

I. D. Walters, Decourcey Street, Mundingburra, Townsville. QLD. 4812.

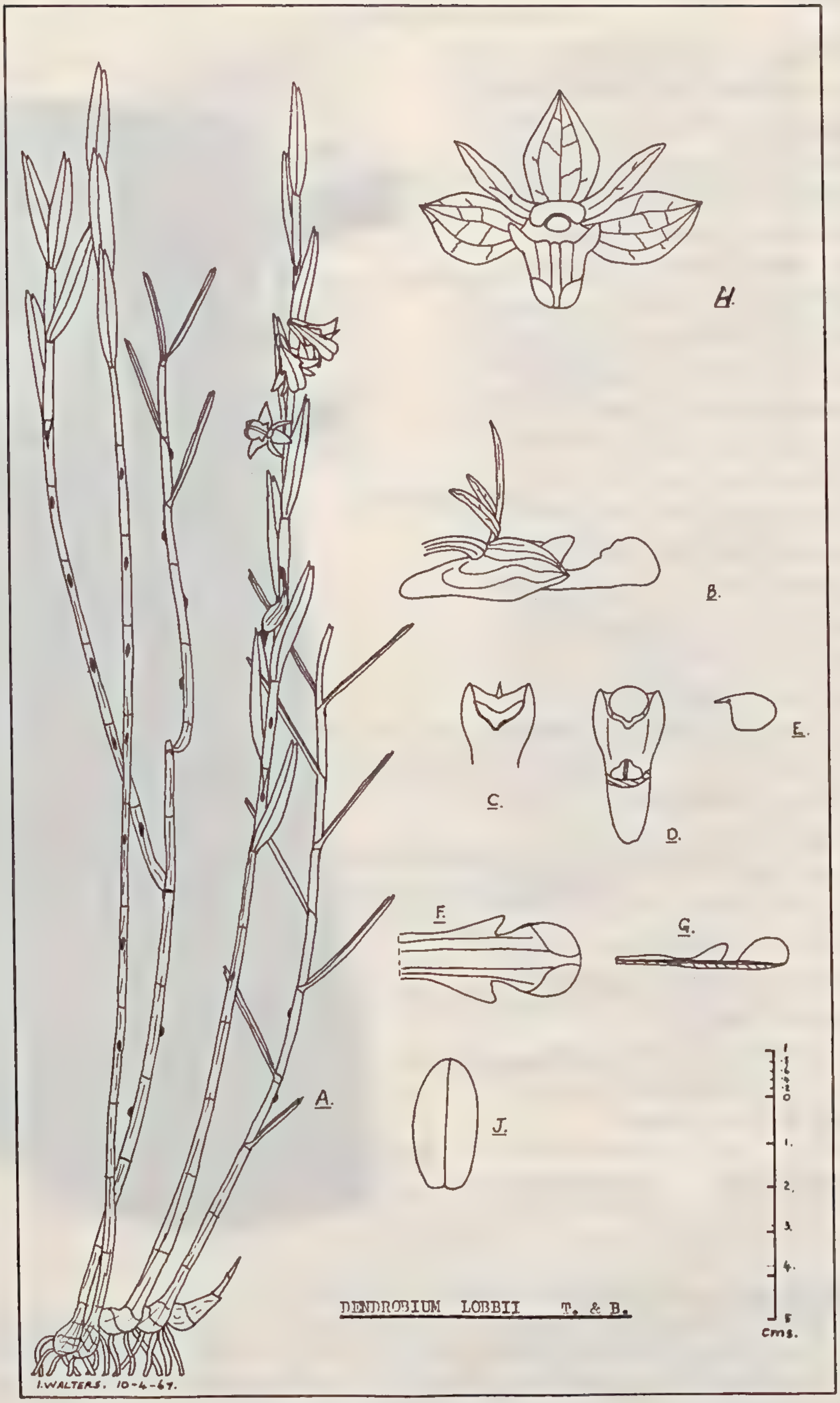
Interesting Recordings From New South Wales.

continued from p. 129.

The writer agrees with A. W. Dockrill who in personal correspondence states that this plant is only a colour form of D. punctata var. punctata. It differs from it only in the presence of darker purple striations on the labellum and dorsal sepal. One specimen from the same area was identified by A. W. Dockrill as D. punctata forma punctata which previously had not been seen away from the Campbelltown area near Sydney. This form is clearly spotted all over and the specimen under discussion was described as "not quite typical but near enough".

Specimens of D. punctata var. punctata forma blackneyae with indistinct spotting and suffusions which must be considered a lead up to forma punctata were found at Coffs Harbour.

continued page 132.



DENDROBIUM LOBBII – KEY TO PLATE

A. Plant (small specimen) ....to scale
B. Flower from side .... to scale X5
C. Top of column, minus anther .... to scale X5
D. Column .... to scale X5
E. Anther .... to scale approx. X5
F. Front end of labellum ....to scale X5
G. Front end of labellum, halved, from side .... to scale approx. X4
H. Flower ....to scale X5
J. One pair pollinia, much enlarged

GADGETS, NICK NACKS & HOME MADE DEVICES TO ASSIST THE AMATEUR NATIVE ORCHID GROWER. contd.

H. Jay.

Fir Bark Producer - Recently at a Sydney Group meeting one of our most noted growers stated that he used the bark of a Casuarina tree, or as I know it, the River Oak. In his opinion it was superior to the commercial imported product. It was generally agreed that it was difficult to remove the bark from a live tree, a hammer or tomahawk usually damages the tree and we, being conservationists, frown on this type of destruction.

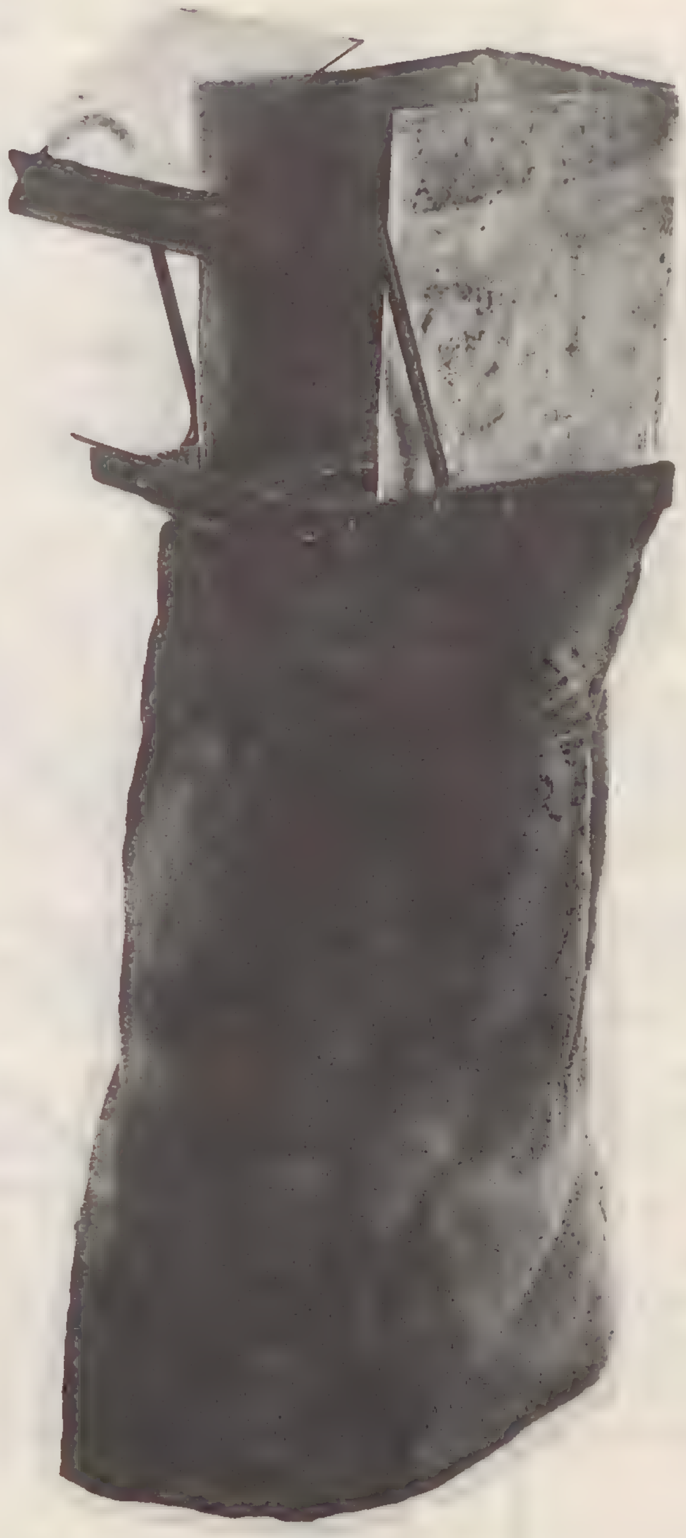
At our next meeting two visiting members, Messrs. Saunders and Smolders from the South Coast, who had sat in at the previous meeting brought along the gadget photographed by Lloyd Bradford. Those who wish to make one up can, I believe, readily do so. The gadget can be likened to a two handed sulky spoke shave with a catcher added. This works beautifully and only removes the dead bark from the trees; it provides pieces from fine dust for baby seedlings to large pieces for bigger plants. The device mainly comprises two pieces of 1" x 1" angle, 12" long, opened out to approximately 120 degrees and the inner edge sharpened for removing and catching the bark. These two angles have two 3/8" round handles welded to them, the opening between blades being 5½". The frame is made from 1" x 1/8" steel, a perspex guard is mounted on the top angles, as this is to prevent the escape of small pieces and the dust from getting in one's eyes, clothes etc, It can just as easily be made from aluminium, tin plate, etc. The sugar bag is optomistic.

I find it better to cut one into three, using the bottom section and then emptying more often into another bag, thus eliminating so much weight on the arms.

It is hoped that interest will have been stimulated and that help from others of this nature will be passed on to our members through the pages of this journal.

Any offers ?

H. A. Jay, 2 Leicester St. Chester Hill.
N.S.W. 2162.



Interesting Recordings From New South Wales. continued from p. 130.

The next day B. Whitehead and S. C. Clemesha discovered Corybas fordhamii (Rupp) Rupp, formerly known only from Brunswick Heads and South Queensland, in a swamp about 4 miles south of Port Macquarie on the Lake Cathie Road. Here the conditions under which it was growing were so similar to those where it grows at Brunswick Heads that the orchid's name was mentioned no more than 30 seconds before discovery as a possibility for that area.

Cryptostylis hunteriana Nicholls, the leafless saprophytic member of this genus which has flowers with labella covered with short hairs which are more erect than those of the allied C. subulata (Labill.) Rchb. f. is extremely rare, previously being known only from the "Grass Tree Plains" of extreme N. E. Victoria and in sandstone country near Broken Bay and near Sydney

continued page 133

THE AUSTRALASIAN NATIVE ORCHID SOCIETY

STATEMENT OF RECEIPTS AND PAYMENTS.

GENERAL ACCOUNT

	1966/67	1965/66		1966/67	1965/66
To Membership subscriptions	$ 506.30	$ 464.50	By Rent for Meeting	$ 4.00	$ 7.00
" Bank Interest	59.42	51.77	" Printing and Stationery	49.92	39.22
" Donations	40.00	28.20	" Donation NSW Orchid Society	14.00	14.00
" Sundry Income	1.55	-	" Insurance	8.16	8.15
			" Petty Cash Expenditure incl. postage	53.87	98.94
			" Prizes	26.20	20.50
			" World Orchid Congress expenses	-	22.33
			" Excess of Receipts over Payments	451.12	334.33
	$ 607.27	$544.47	"	$607.27	$ 544.47

PUBLICATION FUND ACCOUNT

To Members Subscriptions	507.50	418.80	By Printing	714.54	1046.71
" Donations	96.07	20.60	" Special Issue World Orchid Conference		319.69
" Sundry Sales	81.37	27.33	" Printing Check List	12.66	-
" Binding and Sale of Bound			" Binding Charges	91.35	59.25
"Orchadians"	368.25	42.00	" Back Issues	136.94	61.25
" Excess of Payments over			" Petty Cash Expenditure & Postage	15.92	34.76
Receipts	-	1012.93	" Excess of Receipts over Payments	81.78	-
	$1053.19	1521.66		$1053.19	$1521.66

RESEARCH FUND

To Balance carried forward from previous year	1494.65	By Expenses in connection with "Sarcanthinae" Publication	
" Advance payments for "Sarcanthinae " publication	7.00	Typing	9.90
		Lithography	411.40
		Letter Printing	191.75
		Balance Carried Forward	888.60
	$ 1501.65		$ 1501.65

E. MARYGOLD
Hon. Treasurer

E. GORDON
President

I have examined the books of the Australasian Native Orchid Society and report that the above Statement of Receipts and Payments is in accordance with such books.

R.A. PRATT

AUSTRALASIAN NATIVE ORCHID SOCIETY

STATEMENT OF FUNDS

Balance at Bank 30th June 1967		$1602.75
Comprising		
	Balance on Research Grant	888.60
	Credit in General Fund	1411.60
		2300.20
	Debit in Publication Fund	697.45
		$1602.75

Interesting Recordings From New South Wales. continued from P. 132

in similar conditions was found not more than a foot away from a track, about 4 miles east of Pigeon House Mountain via Milton by Miss P.Fulton and the writer in January 1967, when they, Mr. & Mrs. R.H. Fulton, Miss H. Fulton & Miss J. Chapman were attempting to drive to that mountain, but were forced to proceed on foot when a large log blocked the road. Considerable search by all present failed to reveal more C. hunteriana than the 2 specimens found within a foot of one another, through numerous specimens of C. subulata, Dipodium punctatum and Orthoceras strictum were found, including 3 specimens of the pale green, perhaps semi albino O. Strictum forma viride Hatch. In February 1967 while Mr. & Mrs. W. T. Upton, Mr. & Mrs. M.J. Corrigan, Miss P. Fulton and the writer were studying numerous specimens of Prasophyl-Prasophyllum archeri Hook. f. and P.morrisii Nich. present in the Clarence area, a solitary specimen of P. sagittiferum Rupp was found by Miss P. Fulton and the writer. This recording is the first known to the author since Nubling's collections in March 1929 & 1930 near the Bell - Mt. Wilson Rd. Though this collection was made only a few miles from the discovery site the different flowering period and reappearance after 37 years are of considerable interest.

The Flowering Periods of Australian and New Zealand Orchids - Section 2. Queensland. cont.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Geodorum pictum	X	X										X
dilatatum	X	X										
Glossodia major								X	X	X	X	
minor							X	X	X	X		
Goodyera viridiflora					X	X	X	X				
rubicunda										X		
Habenaria anomala			X	X								
banfieldii		X	X	X								
divaricata		X	X	X								
elongata		X	X	X								
ferdinandii												
var. ferdinandii		X	X	X	X							
holtzie		X	X	X								
hymenophylla		X	X									
ovoidea		X	X	X								
ochrolueca		X	X	X								
papuana					X	X	X					
propinquior		X	X	X								
triplonema		X	X									
xanthantha			X	X								
Hetaeria oblongifolia							X	X	X	X		
polygonoides						X	X	X				
Liparis bracteata							X	X	X			
coelogynoides	X	X									X	X
cuneilabris			X	X	X	X	X				X	X
fleckeri				X								
habenarina	X	X	X									
nugentae	X								X	X	X	X
simmondsii	X	X										X
Lyperanthus suaveolens								X	X	X		
Luisia teretifolia	X	X									X	X
Malaxix latifolia	X	X	X	X								X
xanthochila	X	X	X									
Microtis parviflora								X	X			
unifolia								X	X			
Mobilabium hamatum							X	X				
Nervillia pachystomoides	X	X										
discolour	X	X										X
holochila	X	X										X
uniflora	X	X									X	X
Oberonia attenuata					X	X	X	X	X			
muelleriana	Almost any month											
palmicola		X	X	X	X							
Orthoceras strictum										X	X	X
Peristeranthus hillii									X	X		
Phaius tankervilliae									X	X	X	
australis												
var. australis									X	X		
var. bernaysii									X	X		
pictus				X	X	X						
Phalaenopsis amabilis												
var. rosenstromii	X	X										X
Pholidota pallida			X	X	X							
Phreatia robusta	X	X									X	X
crassiuscula	X	X										
baileyana	X	X	X	X					X	X	X	X
Plectorrhiza brevilabris	X	X									X	X
tridentata	X								X	X	X	X
Podochilus australiensis			X	X	X	X						
Pomatocalpa macphersonii							X	X	X	X		

THE ORCHADIAN

MARCH, 1968. PRICE: 30 cents PAGE 135
VOL. 2 No. 11

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: J.H. Scott
R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W.

Registered at the G.P.O. Sydney, for transmission by post as a periodical

BACK ISSUES - THE ORCHADIAN

Members are reminded that all back issues of The Orchadian are available at 40 cents each. Drop a note to Harold Jay, together with your cheque, care of the Society's postal address. Bound copies of Volume 1. Numbers 1 - 12 are available from stock at $6.60.

AUSTRALIAN SARCANTHINAE

All members of the Society and in fact all orchid workers will need this easy to read reference work. Remember, this is a publication of your Society, so buy a copy now, show it to your orchid acquaintances and urge them to purchase a copy.
Australian Sarcanthinae by A. W. Dockrill, with foreword by Dr. R. E. Holttum, pp. 88, with 43 plates, $9^{7}/8$" x $7^{5}/8$", red cloth, (Sydney, 19-9-'67). To members $4.50 including postage and mailer. Retail price $6.00.
Forward your order with address clearly marked, together with your cheque, to The Australasian Native Orchid Society, P. O. Box C. 106 Clarence Street, Sydney, 2000, for prompt attention.

ANNUAL GENERAL MEETING - 7th September, 1968.

The Annual General Meeting of The Australasian Native Orchid Society will be held in room 204, Y. W. C. A., Liverpool Street, Sydney, at 2.30 p.m. This year make an effort to attend and not leave it to your Council to do all the work.

ANNUAL ELECTIONS

Financial members are advised that the closing date for nominations will be 31st July, 1968. Date of election will be 5th September, 1968. Nomination forms will be forwarded to members as prescribed by the Constitution.

MEMBERSHIP RENEWAL

Members are reminded that annual subscriptions to The Australasian Native Orchid Society fall due on the 1st July each year. Post your POSTAL ORDER or CHEQUE, ONLY, not cash as has been the custom of some of our members, to The Society, at P. O. Box C 106, Clarence Street, SYDNEY. 2000.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
- 6 MAY 1968

NORTH QUEENSLAND ORCHID SAFARI

John Young

Reprinted from The Queensland Orchid Society Bulletin by kind permission of the author.

In the following notes I will attempt to describe a car trip undertaken by Jack Kruger and myself through North Queensland. Perhaps our experiences, the places we visited, and the orchids we saw, will all help to make interesting reading for some member. Perhaps too, the native orchid specialists among you will be able to glean a little information on the climate and conditions prevailing in the native habitats of many of our northern species. I hope so.

The country from Brisbane to Rockhampton is rather similar to that which could be seen within a fifty mile radius of Brisbane, and the orchid life to this point also is very similar to that seen around Brisbane, so I will pick up the trail at Rockhampton. We have now entered the tropics and from here the road north passes over some of the most uninteresting country seen on the whole trip - 250 miles of dry, desolate, very sparsely timbered, often boulder-strewn, sunburnt expanses. This inhospitable tract of land is often called "the horror stretch", but even here the orchids are represented. In the stunted trees are to be seen quite healthy specimens of Cymbidium canaliculatum. This plant almost invariably chooses dead trees as hosts, especially in the drier areas of its distribution. It grows in an exposed crotch or hollow limb where it can send its roots down inside the tree trunk in the decomposed wood. To cope with the xerophytic conditions these roots often attain extraordinary length. I have seen them showing in cracks in a tree trunk more than twenty feet from the plant; I have heard of their reaching forty feet! Another remarkable feature of this orchid is its wide distribution. It is by no means confined to the eastern coastal strip and ranges as are most of our other epiphytes, but extends right out over the western plains, and right across the top of the continent into Western Australia.

At the other end of the horror stretch is Sarina, a sugar cane growing town with lush greenery on all sides. From here on one becomes more aware of being in the tropics. We pushed on non-stop to Townsville, Queensland's second largest city, where we stayed for a few days. With Ian Walters as guide we made some very interesting trips into the bush around Townsville. Ian is a young man and he is quite knowledgeable concerning our native orchid species. As a hobby he does very accurate line drawings of the various plants and flowers he collects, and perhaps in the future we will hear quite a lot of him as an authority on our orchids. Some of his work appears in this bulletin but it must be understood that it is most difficult to get these reproductions anywhere near as good as the original. Ian showed us some Habenaria triplonema and Nervilia holochila, both terrestrials and rather showy when in flower. Both seem to require good strong light and a very well drained soil.

Next day, again with Ian, we went northward. Along the route are miles of ti-tree flats - the home of a great many of our showy little Dendrobium canaliculatum. We struck off on foot and followed up a rocky gully therby missing the thickest part of the bush. The little creek which burbled down amongst the boulders was beautifully clear, cool, and good to drink. It was interesting in the way it went underground in some places, only to appear again later on, sometimes at a distance of a hundred to one hundred and fifty yards away. Some idea of the tremendous force of water which comes down these mountain streams can be gauged by the way huge flat slabs of granite weighing several tons had been shoved bodily for yards away from where they had broken free.

More and more orchids became apparent as we climbed. The beautiful terrestrial Dipodium ensifolium was everywhere amongst the short grass. The flowers of this species are rather similar to those of Dipodium punctatum, but the plant is very different. It is not saprophytic as is D. punctatum, but instead has leaves, and is amenable to cultivation. Also a keen eye could detect amongst the grass, the lowly Spiculaea irritabilis. The soil here was again very well drained and we had climbed above the heavy warm lowland atmosphere to more intermediate condition. Epiphytes now began to appear and we saw Dendrobium ruppianum (syn. D. fusiforme) growing on both trees and rocks. Dendrobium speciosum also was present and as we gained altitude - now over 1,000 ft. - we saw more and more of these orchids, often growing in association with each other on the huge granite boulders. D. speciosum and D. ruppianum are rather closely related and I'm sure that the inevitable has occurred and a natural hybrid between the two has resulted. I had read of this suspected natural hybrid before. Apparently it has not been seen in flower, and so nothing very definite can be published on it. Considering the similarity in the flowers of the two species in question, I suppose that a hybrid between them could scarcely have distinctly different flowers. Anyway this much is certain, that we saw a few of these odd plants growing amongst the other two recognised species,

continued page 137

North Queensland Orchid Safari cont'd.

and that the growth of these suspects is in all respects intermediate between that of the two species. Ian had previously found this plant in another locality so it was not new to him. Then, suddenly it seemed, came the highlight of the whole trip. We had been looking for Spathoglottis paulinae in a soak when there appeared amongst the reeds a tall spindly looking plant bearing small greenish flowers with a white labellum. Obviously this was something quite new and I could not begin to convey how elated we all felt at that moment. As we searched around in the waist-high reeds we saw more and more of these orchids. So well did they merge with the reeds that I am sure, had it not been in flower, we would not have found the first plant. There is little wonder, despite the fact that the plant can attain three feet in height, that it has remained undiscovered in Australia for so long. Ian was later able to identify this species as Dendrobium lobbii T. et B., with the aid of "Flora of Malaya" - an excellent book which is represented in the Q.O.S. library. His drawing and description make any attempt at description on my part quite unnecessary. A couple of interesting points however are:-

1. Dendrobium lobbii has not, apparently, been found in New Guinea yet, though it occurs in Malaya and Borneo.
2. The habitat is most unusual for a Dendrobium - marshy ground with high reeds, and with water seeping through it continuously. Of course a lot of the roots are above the ground where they run through the clustered bases of the reed stems. Apparently this orchid chooses these same strange conditions in Malaya also!

We found no Spathoglottis, so we rested up a while before making our descent. Above us, with a clear blue sky as background, were several beautiful orange and scarlet flowered Mistletoe and below, a truly magnificent panorama of coastal plains, winding creeks, the sea and islands. We made our way back to civilisation.

After leaving Townsville our next main stop was to be Cairns, a relatively short trip, so we used our spare time on a couple of brief sojourns into the bush where it seemed most likely that orchids would be found. Such ventures always seem to be rewarding in the north. Near Tully, right beside the road, we saw a couple of plants of Pomatocalpa macphersonii, (syn. Sarcanthus macphersonii) and near Innisfail, on trees overhanging a small creek, were a great many plants of both Cadetia hispida and Oberonia palmicola (syn. Oberonia titania). This latter species is common around Brisbane but the northern form seems superior in that the flowers are more closely set on the spike and the spikes are longer (over six inches). A very rough - and very conservative estimate - revealed that there are over a thousand flowers per spike! These flowers of course, are very tiny, being about the size of a pin head, but never-the-less it is a remarkable effort for such a small, and pseudobulb-less, plant. When magnified, the flowers are truly wonderful, and when not, they still charm all who are fortunate enough to be able to see past the more flamboyant exotics. Also at this same creek were a few small plants of a Sarcanthinae type orchid which appeared most likely to be seedlings of Thrixspermum platystachys. Conditions here were warm, very humid, and the plants received only filtered light. Further along we made a couple more stops to gaze up at the wealth of epiphytic plants in the tall trees by the roadside. Dendrobium smilliae was noted among these, but the orchids were taking too much of our time now and we raced into Cairns with barely enough time to get all our supplies and gear together. Next morning, bright and early, we were to set off for the 'Cape Country'.

From Cairns to Mossman the road follows the coast for much of the way and in parts the rugged headlands and rocky foreshores almost compel the traveller to stop and take in their beauty. Here on the rocky beaches, in full sun and frequently sprayed with salt water there once grew large colonies of Dendrobium discolor (syn. D. undulatum). It seems these were too easy a mark for vandals, for we found only Hoya vines growing on the rocks. Until this time luck certainly had been with us concerning the weather, despite the fact that our trip coincided with the wet season. However, unbeknown to us it had been raining steadily in the Cape and when we reached the turn-off to Laura and the real back-country, we learned that there was four to five feet of water over the bridge at the Hann River and further on at the Moorehead River the bridge, or at least part of it, had been washed away! This information suddenly dashed all our hopes of seeing Cooktown orchids in nature, especially rare colour forms. We decided to go on to Cooktown instead in the hope that within a week or so we would be able to cross the rivers and get through to Coen. The road (dirt) to Cooktown is in poor condition, particularly over the last sixteen miles or so, and the country it passes through is rather barren and uninteresting. In all, were it not for a couple of expansive views, the Black Mountains, and the 'pot holes' and wash-outs in the road, it would be a most monotonous run. These Black Mountains deserve at least a bit of a mention, even in an

continued page 145

PHALAENOPSIS AMABILIS Bl. VAR. ROSENSTROMII (F.M. Bail.) W.H. Nich.

Robert S. Smythe

At present I am one of the most excited persons in these parts, Townsville north Queensland. Yesterday, while taking my wife and niece bush walking, I saw one of the most spectacular native orchid displays that one could ever wish to see.

After driving in the car and stopping at every water hole between Townsville and Ingham for a swim, I decided to try the girls at bush walking and mountain climbing. With my wife carrying the billy and my niece carrying her coolite float so that she would not drown, we headed up the mountain. All I had to carry was about the biggest rucksack you could buy, with the usual things like pineapples, oranges, tea, coffee etc., the usual assortment of makeup and combs, towels, togs (wet). I think you have the idea!

Of course I had to say, "no orchids today, this is a picnic". Really we did have a terrific day with many swims in the cool mountain pools. The rain forest we walked through kept the three of us continually wet due to the high humidity. This made the water even more inviting. Once while the girls were resting I ducked off into the scrub in my togs just for a little bit of a peep around. It was then that I realised I had mosquito repellent on my hands and face only. Back to the creek post haste. Anyway the 'golden orchids' (Dendrobium discolor) which grow on every rock and tree round here were not in flower as it was the 3rd January.

Next stop up the creek, was a rock face where I halted and removed the four small orchids I had smuggled into the mountains in the billy. I planted these cooler climate plants, sent me by Jim Roddotz from Woody Point. I also sprinkled a few seeds around the likely places for germination. This do good act (botanists studying plant distribution may not agree) had its rewards later in the day. Next stop a larger and higher rock pool, then the usual billy of tea, food and another swim. By 3.00 p.m. the girls were resting, having enjoyed themselves beyond belief. The adventure and beauty of the surroundings had got to their souls. I set off for a walk. The deep forest over the other side of the creek bank had very large jungle type figs (Ficus spp.) with anastomosis root systems. I had fond memories of seeing young Phalaenopsis amabilis var. rosenstromii growing in the forks of this type of tree.

In my previous encounters with the species, scarce as they are, I had invariably seen them growing in the forks of these very spreading fig trees. Usually in a colony of two or three, but never singly. Where I have seen the remains of an old dead plant there have usually been 2 or 3 young plants growing out of the old roots. If this is the true pattern they should never become extinct.

Only once before had I seen a plant big enough to flower but being over optomistic I hoped to see a large one growing high up in one of the big trees. I always felt there must be big ones well up from the creek and the mist of the falls, where I have seen the young plants which have germinated over a wide distribution in favourably humid and dark areas.

I decided to walk round in a semi-circle coming out higher up the creek on a big rock outcrop where I could demonstrate my great jungle skill with a Tarzan call to my wife far below. Well as it turned out I did not have a jungle knife to chop my way through those terrible Pandanus palm fronds which hang to the ground like suspended saw blades, so I decided to drop the grand stand bit and go straight up the mountain for the hell of it.

The forest became much drier and I forgot about the Phalaenopsis as a consequence. Then out of the blue loomed a large rock face. I had heard stories of the big Phalaenopsis amabilis var. rosenstromii which grew in Gap Creek. This large rock face has a tremendous fig tree (Ficus spp.) on top of it, but half the way down the rock I believe, a large Phalaenopsis amabilis var. rosenstromii once grew. I have seen the rock, the tree, but no Phalaenopsis amabilis var. rosenstromii. Well this rock face in front of me had a tree on top also. A small Umbrella tree (Schefflera actinophylla) grew there. With my imagination there should have been a small Phalaenopsis amabilis var. rosenstromii on the rock face. Like the other story, there was no Phalaenopsis amabilis var. rosenstromii to be seen.

Well up and over anyway, just for a look from the top just in case I do not see too well from the bottom. Ever an optomist, up I went. On top of the rock was a mat of strap-like fern. I have not been able to identify this plant as yet. The rocks on this area are either covered with Davallia spp., Asplenium nidus, or this fern.

Well I looked over the rock face without any success. When I turned round for the first time in my life I realised why I was taught fairy tales as a child. This was so I could believe what I saw. There sticking out of these strap-like ferns were hyriads of white and yellow flowers all beautifully intact. Phalaenopsis amabilis var. rosenstromii galore.

continued page 139

Phalaenopsis amabilis Bl. var. rosenstromii (F.M. Bail.) W.H. Nich. cont'd.

I never ever expected to see anything like this. From my experience with the young plants I had expected the green caterpillar to have chewed every flower off the day they came out. This green caterpillar makes a mess of the beautiful foliage of the plants starting at the centre of the leaf and chewing the middle right out.

Why were these plants growing so out of character? Why was the floral effort so magnificent? The answer is with mother nature, I firmly believe that orchids give their best floral effort when they are in danger of death. I have seen this so often on the plains below where the tea trees (Leptospermum spp.) grow. When the tree dies, the mass of yellow of the Dendrobium canaliculatum which cover these trees, stand out so dramatically that they catch your eye even when they are over 100 yards in from the road. You can't help but stop the car and take a closer look. With all that lead up, I did not say much about the Phalaenopsis amabilis var. rosenstromii. The visual impact could not be believed, as I am quite sure I did not belive it at the first glance.

These plants had fallen to the ground either on a branch or as a small tree. What I could see of the tree was about 20 ft. long. The plants were lying in an area about 4 ft. square, compared with Dendrobium speciosum that doesn't sound much, but with Phalaenopsis amabilis var. rosenstromii, 'unbelievable'.

The tree was just pulp, of small texture The widest girth would not exceed 1½", not much when compared with the giant figs (Ficus spp.) of previous encounters.

The leaves were not visible in amongst the rotten twigs and fern. When I searched them out, I had my second shock for the day. By what I had seen in the bush and in collections, these were giants. The four biggest plants had leaf sizes around 16" long, the one I measured was actually 16½". How many, actually flowering sprays would you say a plant could have, say, 4 or 8? No! They had a total of 19 spikes. The most branched spike had six side branches and the longest spike was 34" long. Each of the major spikes had from 7 to 9 flowers on them, while the lateral spikes usually had about six flowers. On the bigger sprays, even the lateral spikes had as many as 9 flowers on them.

As well as these four giants, there were three normal flowering size plants with leaf lengths of about 12". These plants had not started to throw spikes as yet, but the remains of last years effort were in evidence. This is normal for Phalaenopsis amabilis var. rosenstromii, as even in the bush houses in Townsville it is obvious that the first flowering Phalaenopsis spp. are last to flower and the older plants of the same cross are the first to flower.

On the rock floor, completely frustrated and perplexed, lay the baby of the group. A single un-flowered plant, its largest leaf being possibly 6" long. If he had not been forced by nature to lie upside-down on the forest floor, he might well be considering putting out his first spike.

I would like to end this article with a question. These plants had their roots right through the wood system of the tree. I pushed up one of the plants and screwed the roots gently with my hand and the wood fell away like sawdust and, just like a skeleton, I was left with strings of roots still in the shape of the tree.

Could the exceptional growth be due to nutrient from the decayed tree? Cymbidiums seem to thrive in it. Why not Phalaenopsis? Personally I would not be game.

Robert S. Smythe, 69 Bundock Street, Belgian Garden. QLD. 4810.

SARCOCHILUS HARTMANNII F. Muell.

Bruce Chick

In the border area Sarcochilus hartmannii grows on cliff faces above 2,000 feet. It favours eastern, northern and western aspects in both shady seepages and on exposed ledges where it copes with temperatures much above 100° at times.

In late summer and autumn its habitat (Blue Knob, which is part of the Nightcap Range) is almost continuously in cloud cover. Most of its limited areas this year would have had over 100 inches of rain.

At sea level a clone takes about a year to acclimatise. The species should be kept on the dry side until roots become active. Guard against slug and scale damage, giving about 50% shade and good ventilation.

I have S. hartmannii growing in sarlon socks, in plastic, terracotta and concrete pots, on slabs of Todea and other tree fern genera, but I prefer the shallow basket or raft with two to three inches of Staghorn fibre. This method allows the plant to spread naturally and it is so easy to "pot on" into a bigger basket. Any open compost seems to suit for pot culture.

Mr. Percy Sheaffe of Mullumbimby was my mentor. Of the three pieces he gathered originally, the one planted in a basket far outstripped the other two to make his magnificent plant. From February onwards the plant cannot have too much water. In late winter the light can be increased to keep the flowers more compact on shorter spikes.

No native orchid is more rewarding or more hardy than our Sarcochilus hartmannii.

Bruce Chick, 16 Wade Street, Murwillumbah. N.S.W.

DENDROBIUM KINGIANUM Bidw.

J. W. EVANS.

W. T. Upton's Display, Memorable Item At Manly Orchid Festival.

The organisers of the recent Manly Orchid Society's Spring Festival were delighted when Wal and Jill Upton offered to mount a display centred on Dendrobium kingianum, its variations and hybrids - as Wal puts it "a most variable native orchid species".

Manly Orchid Society has long leaned on Wal's complete dedication to native orchids, and on his possession of spectacular forms of Dendrobium kingianum, and the extension of these into many beautiful, interesting hybrids.

Indeed Wal's selfless assistance and dissemination of knowledge, has led to the Society's fervent promotion of native orchids, both in culture and display.

Basis of the Upton display were many examples of the species - beauty beyond description, from flawless white to deepest pink. In natural sequence, Wal developed the display to highlight a multitude of hybrids, with a commentary slip attached to each, so that the line of development in crossing was easily followed.

In association with D. kingianum as one of the parents, D. speciosum, D. falcorostrum and D. tetragonum were described, the "family tree" being extended with many fine examples of D. 'Bardo Rose', D. delicatum and D. 'Ellen' again, mostly of Upton hybridisation.

In particular, D. 'Ellen' an hybrid using a pure white form of D. kingianum and a pale yellow variety of D. tetragonum viz. D. kingianum var. album x D. tetragonum var. hayesianum. The resulting D. 'Ellen' is a most magnificent form, and was a focal point of the display.

D. delicatum was well represented, with examples of the natural hybrid from Alum Mountain and MacPherson Ranges, with a unique form from the latter area - pink with narrow petals and sepals.

D. suffusum Cady (D. kingianum x D. gracilicaule) was illustrated, with varying forms, and an interesting second generation hybrid - D. suffusum x D. falcorostrum - another Upton experiment.

D. 'Bardo Rose' was shown in many forms, white through intermediate shades to an almost "liverish" pink.

The accompanying photograph illustrates the extent and visual impact of the display, which drew a constant stream of visitors to the Festival, and repeated high praise for the enterprise of Wal and Jill Upton.

J. W. Evans, 15 Bayview Place, Bayview, N.S.W. 2104.

FLOWERING TIMES OF Caladenia alba R. Br. var. picta Nicholls and Pterostylis nutans R. Br. var. hispidula FitzG.

B. Whitehead.

I have occasionally heard the remark that one of the distinguishing features of these varieties of common species is a flowering period different from that of the species. I found the contrast in flowering times interesting in localities near Wollongong, where I observed both varieties in flower.

C. alba var. picta was found in full bloom on 22nd April. A puzzling feature was the presence in the same locality, and at the same time, of a plant which was without doubt C. alba var. alba.

Pterostylis nutans var. hispidula was a little less uniform in its flowering time. Fully developed flowers of this species were found over a period of time ranging from the last few days of February till the end of March, whereas P. nutans var. nutans was at its best in mid-July. Comparisons of pressed specimens collected on different occasions shows the earlier flowering P. nutans var. hispidula to have a less robust and smaller flower than P. nutans var. nutans. However, the rosette can be quite large, and the flowering stem occasionally relatively tall (up to at least 34 cm.) I did not find the flowers particularly hispid. Relying on memory for comparison of one variety with another was a poor guide, and since both varieties could not be found in flower at the same time, it was necessary to resort to comparison of pressings. Here the difference in general appearance became more apparent.

B. Whitehead, 35 Burke Rd. DAPTO. N.S.W. 2530.

Saprophytic Orchids of Australia & New Zealand. continued from Vol. 2. No. 10. S.C.Clemesha

The True Australians and Underground Plants.

The genus Calochilus is principally Australian. There are 8 species, some of them extending to New Caledonia and New Zealand. They are typical of many Australian orchids - growing through the wet winter and flowering in spring and forming a new tuber which replaces the old one. Their heavily bearded labella give rise to their common name. Only one member of the genus is a saprophyte. Calochilus saprophyticus R.S. Rogers, Trans. Roy. Soc. S. Austr. 54 (1930), differs very slightly from C. campestris R. Br. except in its saprophytic habit. It has large thickened tuberous roots in addition to large, often irregularly shaped tubers. The basal leaf which this genus normally produces in late summer and autumn which is the only above-ground part of the plant until the flowering stem starts to grow is not present and the large stem bracts of C. campestris are a little smaller in C. saprophyticus though still quite large and like the stem and most parts of the flowers, green. The points in which the flowers differ are few and slight. This plant flowers between October and December as does C. campestris. I wonder what would happen to a plant of C. saprophyticus that was moved near a plant of C. campestris or the reverse. C. saprophyticus is known from a few well watered areas of Victoria and Tasmania, and it recently was found in a sawdust heap near Wyong N.S.W.
The genus Spiculea has 3 small species. Two of these, S. ciliata Lindl. and S. irritabilis (F. Muell.) Schltr. are not saprophytes, but the third one, C. huntiana (F. Muell.) Schltr. is somewhat of a mystery. The genus Spiculea is closely allied to Caleana and Drakea. Spiculea huntiana (F. Muell.) Schltr., in Fedde, Repert. 17 (1921), 83, is a small slender plant with leaves as far as is known reduced to a few bracts. The 3 to 5 flowers are green with darker tints.

continued page 142.

Saprophytic Orchids of Australia & New Zealand. continued

The True Australians and Underground Plants.

The narrow sepals and petals are bent down towards the ovary. The labellum is on an articulate claw 10 m.m. long with the column foot at the end it divides into two parts which are covered with long purplish cilia (hairs). The long claw gives the flowers an elbow-like appearance. The flowers are reminiscent of grass seeds. Attempts have been made to dig plants of Spiculea huntiana up by several collectors. These have produced nothing more than a very thin frail stem and tiny vistigial or withered old tubers. It may make its new tubers at considerable distance from the old ones as does S. irritabilis and the Caleana and Chiloglottis species. If this is so it must produce its leaves at another time of the year. It has been suggested that it may be monocarpic flowering once before dying, but this is improbable as it seldom is pollinated. This summer flowering plant grows in stony soils of the mountains of N.S.W. and Victoria. The genus Prasophyllum, Australia's largest, has just one member extending to the tropics (P. aureoviride Rupp) but 80 species altogether with 3 extending to New Zealand and 3 endemic to there. Among this large genus which is very confusing to the botanist is one, just one saprophyte. Prasophyllum flavum R. Br. Prodr., (1810), 318., differs from all the rest of the genus in producing thick fleshy rhizomes in place of the usual ovoid tubers. Its stem and leaf are usually very dark while the part of the stem with the flowers on it and the ovaries of the flowers are green. The flowers are often quite dense and vary from dull yellow, or yellowish green to brown. They are quite large for this genus and the plant gets up to 65 c.m. high. It flowers from November to January and is found in south Queensland, N.S.W., Victoria and Tasmania. It shows a marked preference for sandstone soils in N.S.W. As far as the author is aware it has not been found in the northern half of N.S.W. but must exist there if the south Queensland record is correct.

Genoplesium baueri R. Br. Prodr. (1810), 319, was named after Ferdinand Bauer (1758 - 1840) a natural history artist who worked with Robert Brown on Flinder's "Investigator". He made many colourful illustrations of Australian plants including orchids and these have been described as "certainly among the finest botanical illustrations of all time". This plant produces smooth (at flowering time at least) irregular shaped rootless tubers. The stem varies from green to red. The 2 to 5 flowers are green and red and have unusually long lateral sepals and petals which are notched at the end. A number of author's including Rupp have treated this plant, the only one in the genus as a Prasophyllum but the treatment followed here seems to be favoured by most present day botanists. This plant flowers from January to April and the stem disappears soon after flowering.

We all now know that saprophytic orchids get their food below the ground if they are complete saprophytes and many of the complete saprophytes are self pollinating like Gastrodia queenslandica, G. cunninghamii, G. minor and Epipogum roseum.

A self pollinating saprophyte needs only to scatter its seeds above the ground. Whether the stem comes up, flowers, sets seed and disperses it or flowers sets seed then sends the capsules to the surface to scatter the seeds makes little difference to the plants except perhaps that the latter are exposed to the hazards of life above ground for a shorter period. Epipogum roseum and Gastrodia queenslandica flower and scatter their seed within a few days and must be considered a step towards a subterranean existence and even the normal insect pollinated saprophyte leads a mainly subterranean existence. Another step towards subterranean flowering is the fact that some saprophytes like Didymoplexis pallens have flower stalks that elongate considerably after flowering as Chiloglottis and Corybas do. In reality this is what happens in the subterranean saprophyte the only difference being where the flower is produced. Only 3 subterranean saprophytes are known in the world, 1 in New Zealand and 2 in Australia. The genus Corybas has a distribution from the eastern Himalayas through Malaysia and Indonesia to New Guinea, Australia, New Zealand and far into the Pacific. Australia has 9 species, 2 of these occur in New Zealand which also has 6 endemic species. All but one of these have long well developed sepals and petals unlike the Australian species. Saprophytes are few in Corybas but in addition to the New Zealand plant there is C. saprophyticus Schltr. in New Guinea.

Corybas cryptanthus E.D. Hatch, Trans. Roy. Soc. N.Z. 83:p. 577(1956)(name meaning hidden flower) grows from a rhizome and produces vestigial tubers. Its long sepaled and petaled flowers expand beneath the surface leaf mould etc. After pollination a slender pale sun-starved looking stem emerges several inches above the surface of the soil and disperses the seed. It was the discovery of this stem that lead to the discovery of the plant. Corybas cryptanthus, the most recently discovered subterranean saprophyte, flowers in August and September and occurrs in forests of the North Island of New Zealand and the northern portion of the South Island.

continued page 143

Saprophytic Orchids of Australia & New Zealand. continued

The True Australians and Underground Plants.

The two remaining species belong to genera consisting of just 1 species (monotypic genera) their seed capsules have never been seen but presumably emerge through the soil after flowering and should be watched for by collectors.

Rhizanthella gardneri R.S. Rogers, in Journ. Roy. Soc. W. Austr. 15 (1928), 1. was discovered in 1928 by a farmer who was clearing virgin land. Dr. Rogers wrote "the orchids were found closely surrounding decaying stumps of Melaleuca uncinata. These were partially rotten through the action of a fungus the mycelium of which formed in the subsoil dense mattes of a violet colour and webby texture. The main rhizome which was large, thick and rootless was about twelve inches underground. Situated on its summit was the flower head composed of numerous small flowers surrounded by bracts. The living plant was white, brittle and covered with hairs." The sepals and petals are united into a tube and the labellum shows out beyond this while the column is inside. R. gardneri flowers in May and June unlike most saprophytes. It is known from 3 areas in the south-west of Western Australia.

Cryptanthemis slateri Rupp, in Proc. Linn. Soc. N.S.W. LV11 (1932) 58, is similar in habit to Rhizanthella but the flowers have free sepals and petals. The top of the flowers are at least 2 c.m. below the ground. Cryptanthemis was discovered accidentally when Mr. Slater, in November 1931 was digging up a plant of the leafless saprophytic orchid Dipodium punctatum in an attempt to cultivate it, (which doubtlessly failed). It was discovered in loose gravel-soil near an old alum quarry on Alum Mountain, Bulahdelah N.S.W. It since has been discovered in the Lamington National Park of extreme southern Queensland.

S. C. Clemesha, 3 Consett Street, Concord West. N.S.W. 2138.

ORCHIDS OF THE TUMUT SHIRE.

K. Giles.

The Tumut Shire embraces the three towns of Tumut, Adelong and Batlow and extends southwards to Kiandra and Cabramurra which are beyond the actual Shire boundary, but included in this survey for convenience. There are large areas of rough country little affected by white settlement, much of which is State Forest and Kosciusko State Park. In elevation it ranges from a little below 1,000 ft. to over 5,000 ft. and rainfall correspondingly varies from about 30 inches to probably 80 inches average, predominantly in winter and spring.

Terrestrial orchids occur throughout the region, often in large numbers.

The saprophytes, Gastrodia sesamoides and Dipodium punctatum are conspicuous while the small Spiculea huntiana is probably common though rarely seen. Prasophyllum odoratum seems to prefer rocky areas and P. suttonii is to be found in swampy areas around Batlow. The latter extends to the highest country where it and P. alpinum are common. Microtis unifolia seems to grow everywhere, in poor drought prone shallow soils or moist fertile places. Calochilus robertsonii and less commonly C. campestris grow as scattered plants usually in the warmer areas. Thelymitra nuda and T. pauciflora appear to be confined to the lower elevations while T. ixioides and T. aristata have a wide range. T. venosa may be found from 3,000 ft. upwards, usually in swampy areas and T. media is fairly plentiful in one area around 4,500 ft. Corybas diemenicus is widespread and abundant to about 2,000 ft. above this particularly in the heavy messmate - mountain gum forest C. dilatatus is equally abundant. It prefers shady, sheltered spots with deep leaf mould. A single colony of C. fimbriatus has produced a few flowers once in five years of close observation at Batlow.

Acianthus reniformis grows prolifically with Corybas diemenicus and in somewhat harder conditions. A. exsertus is much less common and Eriochilus cucullatus is plentiful throughout. Colour deepens with elevation and in the higher parts is almost always a deep pink.

Glossodia major, sometimes in vast numbers grows to about 3,000 ft. elevation. Caladenia dilatata is fairly widespread but not usually plentiful. C. reticulata has been found in fair numbers around Tumut.

The blue C. caerulea is plentiful in some parts of the Tumut - Adelong area and a few plants of C. deformis have been found with it. C. carnea occurs in sizes from 3 cm. to 45 cm. the variety gigantea has been identified, doubtfully I think and variety pygmaea, a quite distinct type, was found in one small area. C. congesta is rare but widespread.

The alpine C. lyallii is sometimes found as low as 4,000 ft. It is common in the higher parts. Chiloglottis gunnii grows in abundance in all areas of reasonably fertile soil above 2,000 ft. An interesting variant with many small glands in the labellum has been found growing in one area of sphagnum swamp.

Plants of Chiloglottis reflexa are common at least in the Batlow area, but flowers are not easy to find, particularly in dry autumns. C. trapeziformis is fairly plentiful in one area of rather poor granite soil.

continued page 144

Orchids of The Tumut Shire. continued

A few plants of C. cornuta have been found recently on the highest peaks.
Spiranthes sinensis is to be found in flower in late summer in swamps.
Diuris sulphurea, D. maculata and D. pedunculata are all conspicuous, widespread plants.
The genus Pterostylis is well represented. P. nutans, one of the most common orchids, grows in large colonies well into the higher areas and can be found in flower from July to January. P. curta is surprisingly rare. P. falcata grows on almost all creeks and permanently moist areas. It is sometimes found in Mountain Ash forest in large numbers. The hood varies greatly in length, sometimes closely resembling P. alpina which appears to be rare. P. foliata is reasonably plentiful around Batlow, usually in small colonies of two or three blooms.
P. furcata has been identified from my collection on good authority. However, there appears to be some confusion with P. foliata and I am now unable to find specimens differing in any way from this species. Of the autumn flowering species with separate flowering spikes and rosettes, P. revoluta, P. parviflora, P. reflexa and P. alata appear to be found in the lower areas only. P. decurva is plentiful in good soil in the middle elevations. Three fairly distinct types have been found. P. pusilla has been found on the northern edge of the area in substantial numbers. P. mutica is tollerant of a wide range of habitat. P. cycnocephala is seldom noticed. P. longifolia, P. nana and P. barbata are to be found in the warmer areas and P. pedunculata extends well into the hills.

K. Giles, Batlow. N.S.W. 2730

CHANGE OF CLIMATE - EFFECT ON CULTIVATED TERRESTRIALS.

B. Whitehead

At the end of 1966 I moved from Forbes in Central Western N.S.W. to Dapto, south of Wollongong N.S.W., and the consequent effect of the change in climate on my cultivated terrestrial orchids has prompted me to make the following observations on their performance. Although only a year has passed, and thus one complete growing season for the terrestrials, certain facts are worth noting.

(a) Some species which had never flowered before suddenly began to flower.
(b) Only a relatively small number of species which had grown successfully at Forbes, grew poorly or failed to flower.

While it was not possible to keep the growing conditions completely constant in both places as regards the actual amount of protection from sunlight received, I believe that the milder climate, the absence of frost and the higher rainfall have been responsible for many improvements, in addition to a new fungus attack.
It could be argued that some plants which flowered for the first time did so because this was the first year in which the plants were sufficiently mature. I do not however believe this to be true, because the species concerned had been in cultivation for some years and had regularly produced tubers of all sizes varying from small to very large in the same pot.
Species which flowered for the first time at Dapto are as follows - the number in brackets is the number of flowers produced:- Pterostylis robusta (24), P. truncata (10). P. decurva (1), P. coccinea (green flowered plant from Mt. Canobolas) (2), P. acuminata (6), P. pedoglossa (4), P. falcata (1). In addition, a vast improvement in the number of flowers produced was evident in P. ophioglossa and P. alata. (The latter was later affected by fungus attack).
The species which had flowered regularly, but which failed to do so this season was P. barbata. P. hildae, P. baptistii and P. boormanii were not particularly satisfactory.
In Forbes, when plants were lost, the principal cause was rotting of the rosette stem at soil level. At Dapto the principal cause to date is a black fungus which attacks the leaves of the rosette causing them to shrivel. This fungus is most apparent during or after prolonged periods of rain. Yet of these two ills, a grower appears to have more chance of rescuing new tubers from plants affected by fungus. So far the fungus has occurred about mid-season and examination revealed that quite a few new tubers had been formed by then. The loss of the rosettes did not necessarily mean the complete loss of plants in the pot for the following season. This then leads to another fact which I consider significant.
Terrestrials in cultivation in Forbes were much slower in forming new tubers, so that loss of a rosette through rotting of the stem, any time before late August, usually meant the complete loss of the plant i.e. no new tuber was present by then. I used to examine cultivated plants regularly in Forbes and found that for the greater part of winter, only a small swelling at the end of the fleshy roots was apparent as a new tuber. So, much of the development must have taken place rather quickly during September and early October.
Potting mixtures, because of the difference in local sands available, had to be changed also, and the only noticeable effect overall was one of improvement in the white 'bush' sand as opposed to river sand or gravel. In some instances the improvement was slight, but in the genus Diuris the effect was startling.

continued page 145

Change of Climate - Effect On Cultivated Terrestrials. continued

Tubers up to 3 times the size of the original were produced and there were noticeably more instances of Diuris producing two or three new tubers instead of one. I attribute the improvement to the increased porosity and consequent heavier flow of water through the 'bush' sand. A species of Diuris from Newcastle, as yet unidentified (not D. aurea or D. maculata), which grew originally in hard clayey soil, was the one that showed the most favourable reaction to the different type of sand.

Speaking generally now about the cultivation of terrestrials it is becoming evident to me that the proportion of leaf-mould in a terrestrial mixture appears to be unimportant as long as it is not the dominant ingredient. Stephen Clemesha first drew my attention to this fact, and I have seen some of his terrestrials successfully producing new tubers in a pot of plain sand. Perhaps Stephen would like to make further comment on this. Since he brought it to my notice, I have been observing closely on my plants the effect of different proportions of leaf-mould mixed with plain sand on the formation of new tubers, and while I have not yet tried a mixture with no leaf-mould and only sand for a whole season, I feel at this stage that there is little or nothing to be lost, and better drainage to be gained, by being light-handed with the leaf-mould in potting mixtures. To confuse matters further, Mrs. M. Beek, a successful grower of terrestrials in South Australia, reports good results from the use of Cymbidium compost for some terrestrials. A pressing received of a plant of Pterostylis cultivated in this mixture proved to me its success. Much more needs to be discussed and written on the whole idea of terrestrial cultivation. I am sure many interesting things will come to light.

B. Whitehead, 35 Burke Road, DAPTO. N.S.W. 2530.

North Queensland Orchid Safari. continued

They consist of a mass of tumbled black granite boulders, thrown up in an erratic fashion into two enormous piles each about 1,400 ft. high. They are the home of countless rock wallabies, huge pythons, and bats. It seems over the years that many men, white and black, have lost their lives in the Black Mountains, or "Mountains of Death", as they are called, each trying to find out what happened to his predecessor. Probably all were lost in the labyrinth of caves beneath the boulders, but in any case Jack and I decided we would leave the riddle unsolved - there would be no orchids there anyway. Even the aborigines used to shun the area because of the loud whining noises caused by the wind through the boulders. Now lump together the sinister black colour of the massive boulders, (caused by a lichen), the strange disappearances, the eerie sounds, and the fact that the mountains are virtually devoid of vegetation - except for lichen - and you have something of the awesome atmosphere surrounding the place. Oh yes, you might throw in a few bats and pythons too! We bumped along over the remaining sixteen miles to Cooktown.

Cooktown nestles in under a hill beside a very good natural harbour, quite a beautiful setting really for what proved to be a most interesting little town. Cooktown was one of our gold-rush towns and its history is just as bawdy, riotous, and brutal as anything America's "West" ever had to offer. How disappointing it is that so little of the town's history is available, even in the town, and that so little of the old mining days is in evidence today. A few wooden ghost town relics in delapidated condition remain, as does a lavish stone bank building, obviously built in Cooktown's heyday. This would scarcely be out of place in the middle of Brisbane but it now looks quite ridiculous amidst its humble surroundings.

This town was the outlet for Australia's richest alluvial gold field, the Palmer, and in one year (1875) officially, forty tons of gold were shipped out of Cooktown. On top of this, many thousands of ounces were smuggled out by the Chinese. At this time there were sixty-five hotels and applications were in for another thirty. Today there are only three. All Cooktown's glories are in the past now, but the present population is determined to keep the town on the map. Good luck to them, but we had come to look for orchids.

This proved rather difficult. We started off north, but a blackfellow we accosted for information soon dampened our enthusiasm for that direction. We went back through the town and on south. We noticed a few beautiful specimens of Dendrobium teretifolium var. fasciculatum

continued Vol. 2 No. 12.

The Flowering Periods of Australian and New Zealand Orchids - Section 2. Queensland. cont'd.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prasophyllum acuminatum	X	X	X	X	X							X
archeri	X	X	X	X	X							X

The Flowering Periods of Australian and New Zealand Orchids - Section 2. Queensland. cont'd.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prasophyllum aureoviride		X	X									
australe									X	X		
brevilabre										X	X	
densum	X	X	X	X	X							X
elatum									X	X	X	
flavum	X										X	X
nigricans		X	X	X								
odoratum										X	X	
patens									X	X	X	X
parvicallum											X	
viride	X	X	X	X	X							X
Pterostylis acuminata												
var. acuminata			X	X	X							
baptistii			X	X	X							
daintreana			X	X	X							
depauperata		X	X	X	X							
grandiflora				X	X							
hildae			X	X	X							
mitchellii								X	X			
mutica							X	X	X	X	X	
nutans						X	X	X	X			
obtusa			X	X	X	X						
ophioglossa			X	X	X							
var. collina			X	X	X							
parviflora		X	X	X								
pedunculata							X	X	X			
pusilla								X	X	X	X	X
reflexa			X	X	X							
revoluta			X	X	X							
rufa								X	X	X	X	X
russellii							X					
woollsii											X	X
Robiquetia rectifolia							X	X	X	X		
tierneyana			X	X	X							
wassellii									X			
Rhinerrhiza divitiflora								X	X	X	X	
Saccolabium subluteum		X	X	X								
Saccolabiopsis armittii									X	X	X	X
Sarcochilus ceciliae	X	X	X								X	X
sub-species roseus	X									X	X	X
falcatus						X	X					
fitzgeraldii										X	X	
Sarcochilus olivaceus												
var. olivaceus						X	X	X				
var. borealis						X	X	X				
tricalliatus	X										X	X
spathulatus										X	X	
Schoenorchis densiflora				X	X	X	X					
Spathoglottis paulinae	X	X	X				X	X	X	X	X	X
Spiculea iritabilis	X	X										X
Spiranthes sinensis	X	X										
Tainia parviflora									X	X	X	
Taeniophyllum wilkianum	Almost any month											
lobatum											X	
muelleri	Almost any month											
Thelymitra aristata												
var. aristata			X	X						X	X	
ixioides								X	X	X		
pauciflora												
var. pauciflora									X	X	X	
Thrixspermum congestum	X	X						X	X	X	X	X
platystachys	Almost any month											
Vanda whiteana	X										X	X
Zeuxine oblonga							X	X	X			

THE ORCHADIAN

JUNE, 1968 PRICE: 30 cents PAGE 147
VOL.2 No.12

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: J.H. Scott
R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box C106, Clarence Street, SYDNEY, N.S.W.
Registered at the G.P.O. Sydney, for transmission by post as a periodical.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
25 JUL 1968

ANNUAL GENERAL MEETING - 7th SEPTEMBER, 1968.

The Annual General Meeting of The Australasian Native Orchid Society will be held in room 210, Y. W. C. A., Liverpool Street, Sydney, at 2.30 p.m. All members should make an endeavour to attend this, the most important meeting of your Society's calendar.

ANNUAL ELECTIONS

Financial members are advised that the closing date for nominations will be the 7th August, 1968. Date of election will be the 5th September, 1968. Nomination forms will be forwarded to members as prescribed by the Constitution.

MEMBERSHIP RENEWAL

Members are reminded that annual subscriptions to The Australasian Native Orchid Society fall due on the 1st July each year. Post your POSTAL ORDER or CHEQUE, ONLY, NOT CASH, as has been the custom of some of our members, to The Society, at P.O. Box C. 106 Clarence Street, N.S.W. 2000. The name SYDNEY, should NOT appear in the address.

BACK ISSUES - THE ORCHADIAN

Vol. 1, No. 1 - 12 and Vol. 2, No. 1 - 12, are now available to members at 40 cents each. Index to Vol. 1. is also available at 40 cents each. This index lists every orchid mentioned within the volume and is an ideal reference source. Index to Vol. 2, is in the course of preparation and will be mailed to all financial members with their next issue of The Orchadian. Bound copies of Vol. 1. No. 1 - 12 with Index are available to members at $6.60 each, including certified postage. Bound copies of Vol. 2 will soon be available and further details will be given in your next issue. Order your requirements from your Hon. Sec. Harold Jay at above address.

AUSTRALASIAN SARCANTHINAE - By A. W. Dockrill.

Australasian Sarcanthinae by A. W. Dockrill, with foreword by Dr. R. E. Holttum, pp. 88, with 43 plates, $9^{7}/_{8}$" x $7^{5}/_{8}$", red cloth, (Sydney, 19-9-'67). To members $4.50 including postage and mailer. Retail price $6.00.
Has your suburban orchid society a copy? If not, suggest that they purchase a copy and in so doing help your society, A. N. O. S., to publish further similar works in the future.
Forward your order with address clearly marked, together with your cheque, to The Australasian Native Orchid Society, at the above address.

THE SIXTH WORLD ORCHID CONFERENCE - SYDNEY, AUSTRALIA - 12th to 17th SEPTEMBER 1969.

The 6th World Orchid Conference will be sited in two of Sydney's most modern buildings. The Conference in the recently completed Wentworth Hotel, and the Orchid Exhibition in Australia's most dramatic new 50 storey Tower Building in Australia Square. The exhibition floor with an area of 12,000 sq. feet will be devoted entirely to displays of orchids, 5,000 sq. feet of Conference floor will be used for the same purpose, also on this floor will be the administrative offices of the show, both floors are fully air conditioned.

The Tower Building is the most modern and exciting in Australia. On the 47th floor is the largest circulating restaurant in the world, while the 48th floor is a glassed-in walk providing the most breath-taking views. The panorama includes the world's most beautiful harbour, the famous Harbour Bridge and the most talked of modern building in the world; the sixty million dollar, Sydney Opera House with its sail-like roof.

Already well over 300 overseas and interstate visitors have signified that they will attend the Conference - this points to an attendance record.

All the mainland State Orchid Society's have signified their intention to exhibit, including Western Australia whose capital is over 2,000 miles to the west of Sydney, Adelaide growers will send plants, as will both Melbourne and Brisbane growers.

A REVIEW OF THE SO-CALLED "RUFOUS GROUP" OF THE GENUS PTEROSTYLIS.

J. A. P. Blackmore
S. C. Clemesha

SUMMARY

In this paper the correct identity of *P. rufa* R. Br., *P. gibbosa* R. Br., *P. squamata* R. Br. and *P. mitchellii* Lindl. will be established; *P. biseta*, *P. ceriflora* and *P. hamata* will be described as new species; *P. mitchellii* will be reduced to a subspecies of *P. gibbosa* which will be reinstated as a valid species. *P. pusilla* Rogers var. *aciculiformis* Nicholls will be given a new combination and status under *P. rufa*; *P. squamata* and *P. pusilla* var *prominens* Rupp, will be reduced to synonyms of *P. rufa*; *P. pusilla* var. *pusilla* will be reduced to a synonym of *P. rufa* ssp. *aciculiformis* while *P. rufa* var. *despectans* Nicholls will be reduced to a synonym of *P. boormanii* Rupp.

INTRODUCTION.

The classification of this group has caused considerable difficulty and confusion has reigned since Bentham grouped all known species into *P. rufa* R. Br. Shortage of specimens led many botanists to believe that all or most of the species were quite variable and that many forms merged into one another. All species have now been found in quantity and most from widespread areas. We have also had the invaluable assistance of photographs of the types of Robert Brown's and Lindley's species from Kew and the British Museum. In the opinion of the authors, the examination of many fresh specimens has revealed that the species in this group are as constant as any other species of the genus.

Difficulties have arisen through other reasons also, these being:

1. The same name (especially *P. rufa*) has been used for separate species in different states.
2. Species have been separated on unreliable features. For example:
    - (a) The state of the rosette at flowering time and the number of bracts on the stem. These vary with growing conditions.
    - (b) Labellum tip "upturned" or "emarginate": Although several species show these characteristics they are not sufficiently consistent to be points of indentification.
    - (c) "Slipper-shaped" labella: This description is of little assistance as most members of the group have labella which are more or less "slipper-shaped" when viewed from the side.
    - (d) Labellum "membranous"(applied to *P. rufa* but meaning *P. biseta*). While the labellum of this species is thinner than all other species in the group, it is by no means membranous.
    - (e) Reference to "undersurface of labellum channelled" as a distinguishing point: This is a characteristic of all species in the group.
3. Too great an emphasis has been placed on the shape of the labellum without regard to the other floral details. It is difficult to separate some species on the labellum details alone but this should not lead to lumping of species - many acknowledged species in the single flowered group have similar labella.
4. Identification of plants from damaged and poor specimens (usually pressed). Although members of the group press well if care and good technique are used, the details of the labellum are often lost. Even to one familiar with the group, poorly pressed specimens are difficult to determine.
5. Shortage of specimens, When the group was considered very rare, only a few fresh specimens were seen and often at lengthy intervals. A good comparison was, therefore, practically impossible.

continued page 149.

A REVIEW OF THE SO-CALLED "RUFOUS GROUP" OF THE GENUS PTEROSTYLIS. Cont'd.

KEY TO SPECIES

- 1. Lower sepals thread-like for more than 4 cm. .... 1. *P. woollsii*
- 1.* Lower sepals thread-like for less than 3 cm.
  - 2. Lower sepals noticeably ciliate.
    - 3. Labellum red brown and deeply channelled on upper surface. .... 3. *P. boormanii*
    - 3.* Labellum green, flat or with a slight ridge on the upper surface. .... 2. *P. biseta*
  - 2.* Lower sepals not ciliate or very slightly so.
    - 4. Lower sepals projected forwards and upwards in a hook-like manner and galea with a pair of near-touching tonsil-like swellings at the base. .... 4. *P. hamata*
    - 4.* Lower sepals not curved forwards and upwards and swellings absent from the base of the galea.
      - 5. Lower sepals reflexed back against the ovary; flower green with a contrasting dark brown almost black labellum .... 5. *P. ceriflora*
      - 5.* Lower sepals straight or nearly so and never reflexed against the ovary. Labellum light to dark red brown and never almost black.
        - 6. Lower sepals thread-like for 5 mm. or more, labellum broad lanceolate and wholly brown. .... 6. *P. gibbosa*
        - 6.* Lower sepals thread-like for less than 5 mm. or ending in short points, labellum oblong and brown with a pale basal swelling. .... 7. *P. rufa*

This key was devised for use with fresh material. If used with care it can be used fairly satisfactorily with dried material.

continued page 150.

A Review Of The So-Called "Rufous Group" Of the Genus Pterostylis. Continued.

ACKNOWLEDGEMENTS

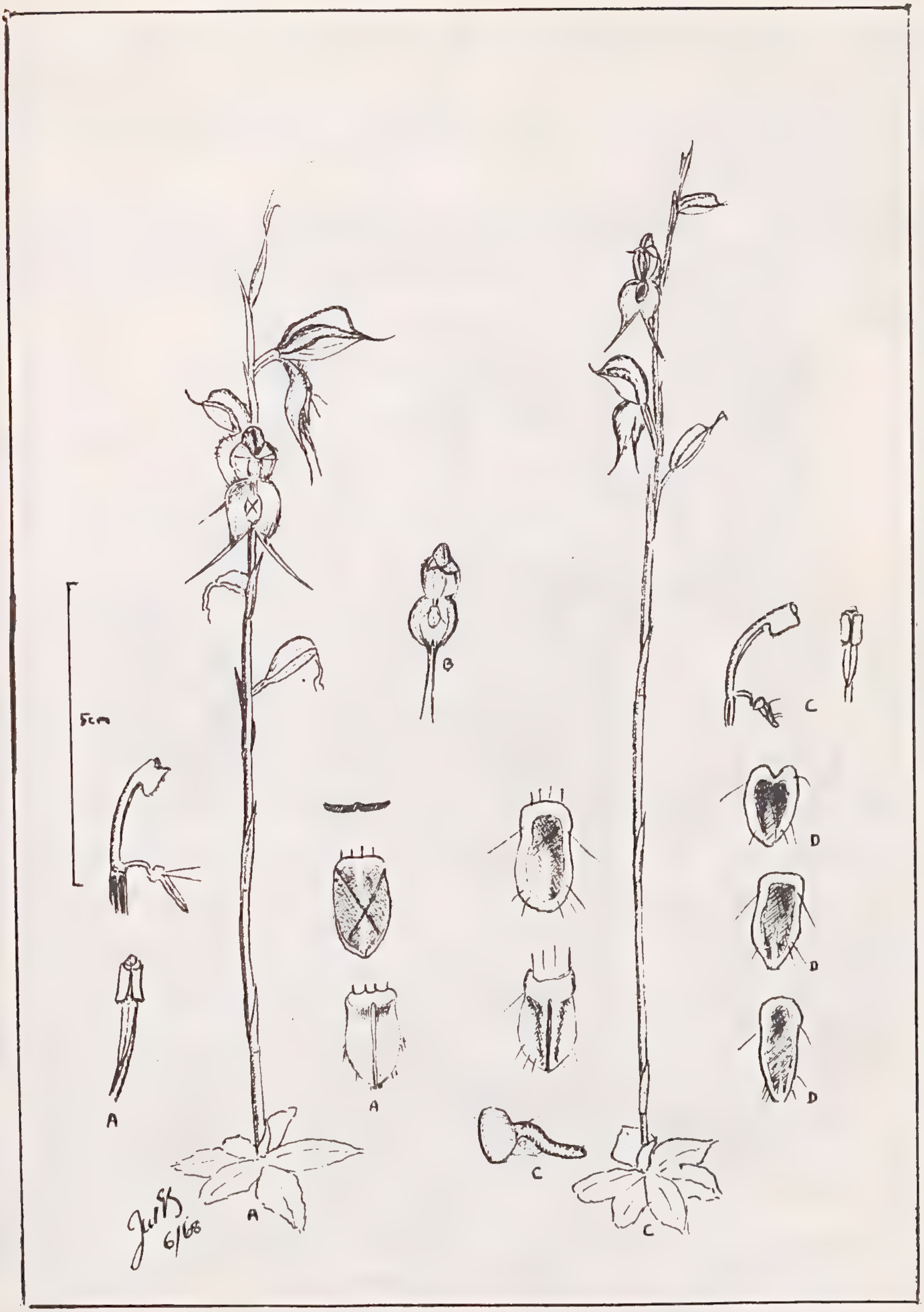
The Authors would like to express their thanks to all who have provided specimens, photographs, or information which has assisted them greatly in preparation of this review and particularly the following institutions and people: British Museum (Natural History) and Royal Botanic Gardens, Kew, for photographs of the type material of P. rufa R. Br., P. squamata R. Br., P. gibbosa R. Br., and P. mitchellii Lindl.
Mr. K. Mair of the National Herbarium of N.S.W. for permission to refer to the Herbarium's collection and library. Mrs. M. Beek, Mrs. F. Coate and Miss P. Palmer. Messrs. G. & P. Althofer, W. Brinsley, the late M. Firth, W. & K. Giles, H. Goldsack, E. Gordon, D. Jones, C. Ingram, P. Metcalf, R. Nash, L. Parker, M. Percival, B. Whitehead and J. Willis.

DESCRIPTION AND DISCUSSION

1. PTEROSTYLIS WOOLLSII FitzG. Austr. Orch., 1,2:+t col. (1876).
Plant 12 - 45 cm. high, leaves basal ovate to oblong or lanceolate, green or withered at flowering time. Stem bracts 2 - 5. Flowers 1 - 5, on pedicels 5 - 8 mm. long with the galea curved from the base, horizontal on top for about 4 - 5 mm. ending in a filiform point 13 - 16 mm. long. Petals terminating at the base of this upturned point. Lower sepals united for about 8 - 9 mm., more or less erect at the base then suddenly deflexed in front of the ovary and widely expanding, forming a concavity along which the labellum lies when exerted, then suddenly contracting just beyond their junction, and the free portion constricted into filiform caudae 6 - 12 cm. long. Labellum lanceolate, on a very irritable claw, the lamina with 2 swellings at the base, and an erect appendage continuous with the longitudinal ridge; apex slightly upturned, ciliate, and 2 or 3 long setae along each side of the lamina. Column incurved, much longer than the labellum; upper wing-lobes reduced to short points, the lower pair broad but short, rounded below; margins inturned and densely ciliate. Stigma elongated.
Flowering Period: November to January.
Distribution: Almost endemic to N.S.W. - tablelands and western slopes but recorded from southern Queensland (Stanthorpe) - within a few miles of the N.S.W. border and once from Rushworth, northern Victoria. It is more common in the northern half of N.S.W. than the southern half. Although on the whole it is rare, up to 200 plants have been found in dense colonies in areas about one yard square - e.g. near Dripstone and Wellington N.S.W. Though discovered near Richmond N.S.W., where it could still conceivably be found, all recent attempts to locate it in the type area have failed.
References: Nicholls, in Barrett, Sun Nature Book n. 5: 30 fig. D, col. (1934).
Nicholls, Vict. Nat. 45: t. 8 (1928).
Rupp, Guide Orchids N.S.W., 117 (1930).
Rupp, Orch. N.S.W., 96, (1943).
Willis, Handb. Plants Vict. 415 (1962).
Blackmore, The Orchadian, 1, 69 & 160, illustr. 67 & 161 (June 1965).
Brinsley, Austr. Orch. Rev. Vol. 30, 129 (1965) & Vol. 32, 97 (1967).
P. woollsii was named after Dr. Woolls, a noted local botanist, who discovered the plant. The type material was not preserved so FitzGerald's plate must be taken as such.
This distinct greenhood is readily distinguishable from the rest of the group by its very long lower sepals. It holds the unique position of never having been confused with another species of the group.

2. PTEROSTYLIS BISETA Blackmore et Clemesha sp. nov.
Holotype: Blackwood, South Australia, R.S. Rogers, 24. 11. (1906) (NSW 99356)
Planta aliquantum robusta alta 10 -25 cm. Flores 1 - 6, virides et rufuli; galea curvata per totam longitudinem cum acumine filiforme. Sepala lateralia ciliata, connata, deinde angustissima, acuminibus filiformibus. Labellum latum et oblongum cum jugo humile; setae marginales breves, ad basem setae 2 prominentissimae. Columna circa 18 mm. alta; alae cum lobis superioribus acuminatis et lobis inferioribus oblongis marginibus ciliatis. Stigma longa augustaque.
Synonym: P. rufa var. despectans Nicholls, Vict. Nat. 66:215 (1950).
A moderately robust plant up to 25 cm. high; basal leaves 4 - 7, ovate, green or withered at flowering time. Stem bracts 2 - 6. Flowers 1 - 7, variable in size and sepal length, generally large compared with other species of the group, pale green with rufous tints and translucent spaces. Galea, (including upturned, about 12 - 18 mm. filiform tip,) about 25 - 35 cm. long, curved for all its length. Petals terminating at the base of this point, about 13 mm. x 5 mm. in average specimens when pressed flat. Lateral sepals 1.8 cm. - 40 cm. x 9 - 12 mm. broad, margins ciliate, united for about 15 mm. constricted to out-turned or parallel filiform caudae.

continued page 152



A & B Pterostylis biseta Blackmore and Clemesha
A Specimen from Grong Grong N.S.W.
B Flower from plant collected in Grampians Vic. showing parallel sepal points.

C & D Pterostylis gibbosa R. Br. ssp. gibbosa
C Specimen from Sackville N.S.W.
D Various labella showing variation.
Details variously enlarged.

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued.

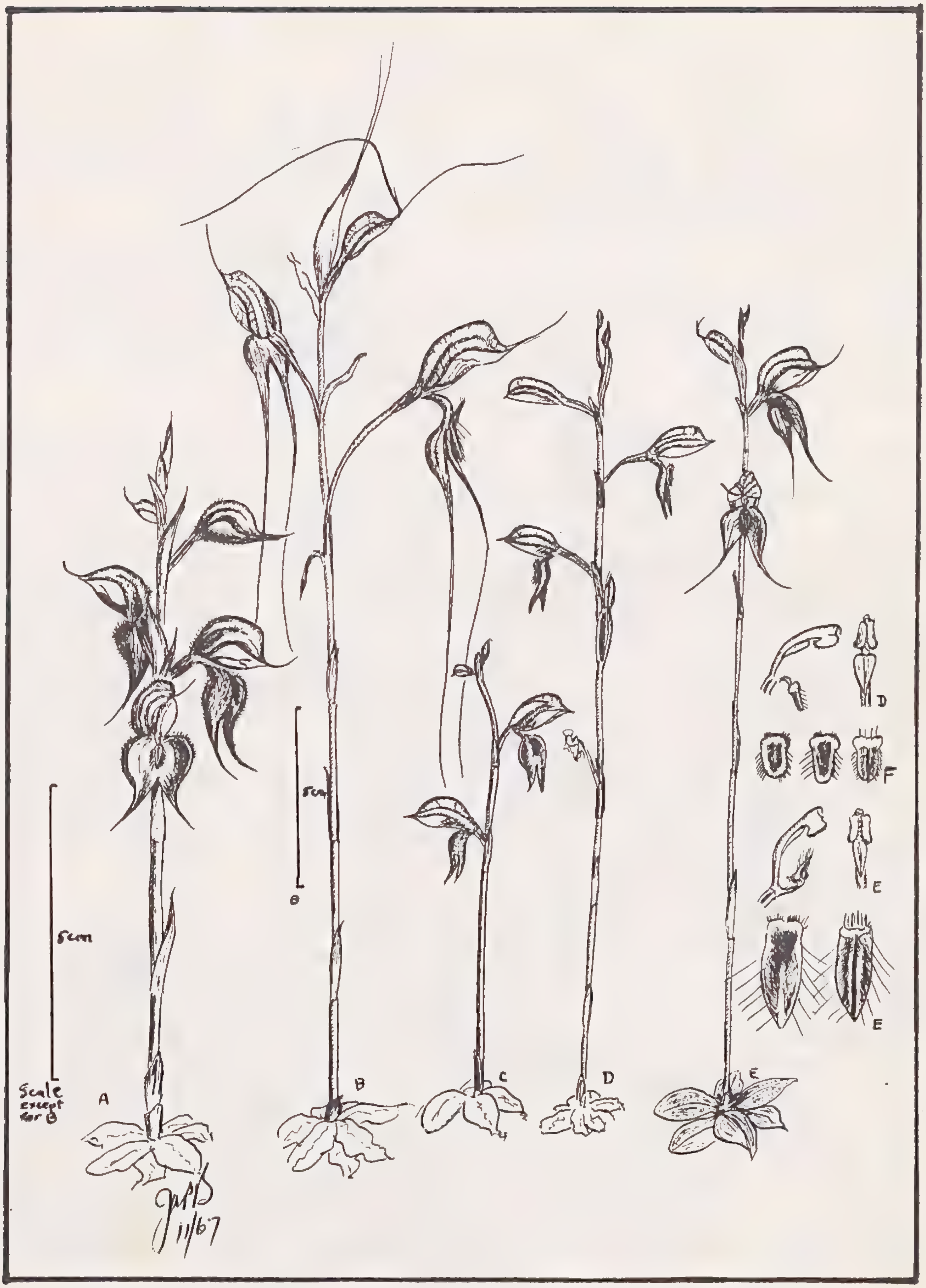
Labellum on an irritable claw about 2/3 its own length, 5 - 6 mm. long, pale in colour, oblong. 6 mm. x 2 mm. with a low ridge on its upper surface; tip slightly upturned, entire and obtuse; margins bearing about 5 pairs of rather short setae and with one prominent pair of setae at the base more than twice the length of the others. Appendage reduced to a swollen base of the lamina. Column; upper wings acuminate; lower wings curved outwards in front and lobed below; margins ciliate. Stigma very narrow.
Flowering Period: September to November.
Distribution: N.S.W. - Riverina district and central western slopes at least as far north as Dripstone and Mudgee. Victoria - With exception to the far north east scattered throughout the whole state but uncommon. South Australia - Widespread in dry parts of south east. Western Australia - A photograph sent from the wheat belt appears to be this species but Western Australian records require confirmation.
References: - As P. rufa except where stated otherwise.
Rogers, Introd. Study S. Austr. Orch. ed. 2: (1911).
Fiveash in Rogers, Trans. Roy. Soc. S. Austr. 38:t. 15 (1914).
Rogers, in Black, Fl. S. Austr. 248 (1922).
Green, Vict. Nat. 42:t.5. fig. 5 (1925).
Nicholls, Vict. Nat. 43:106. fig. 25 (1926).
Rupp, Guide Orchids N.S.W. 116 (1930) (description only - the plate is P. gibbosa R. Br. ssp. gibbosa.
Nicholls, in Barrett, Sun Nature Book n. 5:37 (1934).
Rupp, Orch. N.S.W. 96 (1943).
Scammell, in Rupp, Orch. N.S.W. pl. 18, 97 (1943) (as P. squamata R. Br.)
Erickson, Orch. of West t. 14. fig. 10 (1951).
Willis, Handb. Pl. Vict. 416 (1962).
Beadle, Evans & Carolin, Handb. Vasc. Pl. of Sydney Distr. & Blue Mts. 467 (1962).
Goldsack, Aust. Nat. Parks and Wild Life Reserves, 48 & 62 (1964).
Brinsley, Aust. Orch. Rev. Vol. 30. p. 129 (1965) & Vol. 32. p. 97 (1967).
Also see note by Blackmore, The Orchadian, 1, 69 (1964).

Since this is primarily a southern species the holotype has been selected from a number of excellent specimens collected by Dr. R.S. Rogers and is lodged with the National Herbarium Sydney. The specific name refers to the two prominent basal setae of the labellum. These are much more prominent than the smaller low ones and this outstanding feature is quite constant in this species, although it extends to other species. P. biseta varies considerably in size and length of sepals. In Vict. Nat. 66:215 (1950) a form "low in stature with paler flowers produced at the ends of longer deflexed pedicels" was described by W.H. Nicholls as P. rufa var. despectans. From the illustration this appears to be an aberrant form and the authors consider that it should be regarded as a synonym of P. biseta.

P. biseta has long been confused with P. rufa R.Br. especially in Victoria and South Australia, despite the fact that it is one of the greenest members of the group.

3. PTEROSTYLIS BOORMANII Rupp, in Orch. N.S.W. 98 (1943), Emmend. Vic. Nat. 159 (1945).
Synonym: P. squamata R. Br. var. valida Nicholls, Vict. Nat. 58:115 (1941).
A sturdy plant 5 - 15 cm. high, with 4 - 7 radical leaves which are ovate to oblong. shortly petiolate or almost sessile, 1.8 - 2.5 cm. long, green or withered at flowering time. Bracts 2 - 4 closely appressed. Floral bracts rather large with acuminate or almost filiform points and at least 2 - 3 cm. long. Flowers 1 - 7. Galea deeply cucullate, 23 mm. around the curve including the generally upturned filiform point about 6 mm. long. Dorsal sepal having a few glandular hairs and swollen at the base where longitudinal veins are prominent and raised, olive greenish brown with translucent spaces. Petals terminating at the base of this point and 12 - 13 mm. x 4 - 4.5 mm. when removed from the flower and pressed flat, translucent with deep reddish brown tints towards the basal end and mainly along the lower margin or in some specimens brown almost to the apex. Lower sepals deep reddish brown and thicker than in other species of the group and slightly lighter towards the sinus, connate for their basal thirds, 2.8 - 3.2 cm. long and 1.4 - 1.6 cm. wide across the united part, abruptly deflexed near the base, divergent from the termination of their union, suddenly narrowing anteriorly into filiform points about 1.6 - 1.8 cm. long, the points curving variably; both sepals conspicuously ciliate along their outer margins and on anterior surface from the base for about a third of their length. These cilia are rather unusual in character, appearing rather like elongated glandular structures than hairs. Labellum on an irritable claw half its own length, dark brown, thick and fleshy, very small

continued page 154.



A Pterostylis boormanii Rupp
B Pterostylis woollsii FitzG.
C Pterostylis rufa R. Br. ssp. rufa from Greensborough Vic.

D & F Pterostylis rufa R. Br. ssp. rufa from Riverstone N.S.W.
F Various labella.
E Pterostylis gibbosa R. Br. ssp. mitchellii (Lindl.) Blackmore and Clemesha
Details variously enlarged.

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued.

compared with other species of the group, about 5 mm. x 2 mm., bluntly lanceolate, narrowing anteriorly, channelled in basal 2/3, densely glandular - pubescent at the obtuse or nearly acute or minutely emarginate apex, beset along the lateral margins with 4 - 8 long more or less equal setae; base slightly gibbous, quite glabrous or with 2 or 3 rather short setae or with 2 clusters of still shorter ones; a few setae sometimes at the base of the channel on the under surface. Column about 16 mm. long, much curved; the wings devoid of upper lobes and often quite lobeless and square or with short lower wings; densely ciliate along the margins. Rostellum relatively prominent; stigma conspicuous, broadly winged, the wings sometimes angular.

Flowering Period: September to November.

Distribution: N.S.W. - Common in numerous areas from at least as far north as Coonabarabran and Cobar to Victoria, but almost confined to the western watershed, crossing it only to the east of Mudgee. Victoria - Rare, e.g. Beechworth near Bendigo and Horsham. South Australia - Apparently rare and at present known only from Grangeville 28.8.1907, Dr. & Mrs. Rogers and the Flinders Ranges. (Photographs in the collection of E. Gordon.) Western Australia - A poor specimen in the Herbarium N.S.W. from Western Australia may be P. boormanii. It also may extend to Queensland. This species is very constant over its whole, wide range.

References: FitzG., Austr. Orch. 1, 6 (1880) as P. squamata.
Blackmore, The Orchadian 1, 69, 78 - illustrated on pp. 67 & 78 (June 1964).
Brinsley, Austr. Orch. Rev. Vol. 30. pp. 126 & 129. Vol. 32, 97, 99 (Sept. 1967).

The above description of P. boormanii is based on Rupp's amended description and was prepared from fresh specimens from near Grenfell, Forbes and Cowra. The type specimen in the N.S.W. Herbarium at Sydney has been examined by the authors and it can be confidently affirmed that P. boormanii is the plant which has been generally accepted as such.

In Vict. Nat. 58:115 (1941) W.H. Nicholls described P. squamata var. valida as a robust plant differing from the typical form (i.e. P. hamata Blackmore & Clemesha) in being wholly green, having robust scapes about 6" high, and longer (2 cm.) sepal points which are not hooked inwards but almost parallel, P. boormanii had not then been described and in any case Nicholls considered Rupp's species to be P. squamata R. Br. Certainly the shape of the galea illustrated by Nicholls can scarcely be regarded as typical of P. boormanii but the lanceolate labellum, short robust stem and cilia on the lateral sepals all point to P. boormanii. Nicholls himself thought that this plant was indentical with that illustrated by FitzGerald as P. squamata which the authors consider represents P. boormanii. For these reasons the authors consider that Nicholls' variety should not be referred to as P. hamata but should be treated as a synonym of P. boormanii.

P. boormanii was named after J.L. Boorman - a botanical collector for the National Herbarium N.S.W. who collected specimens of it in October 1906, near Peak Hill N.S.W. The present specimens were examined and endorsed by Dr. Rogers as an undescribed species and were the basis of Rupp's original description, the type specimen being lodged with the National Herbarium N.S.W. FitzGeralds illustration (as P. squamata) shows that the species had been collected earlier but the illustration is not a good one (perhaps of a wilting specimen) and consequently does not appear to have been recognised until recently.

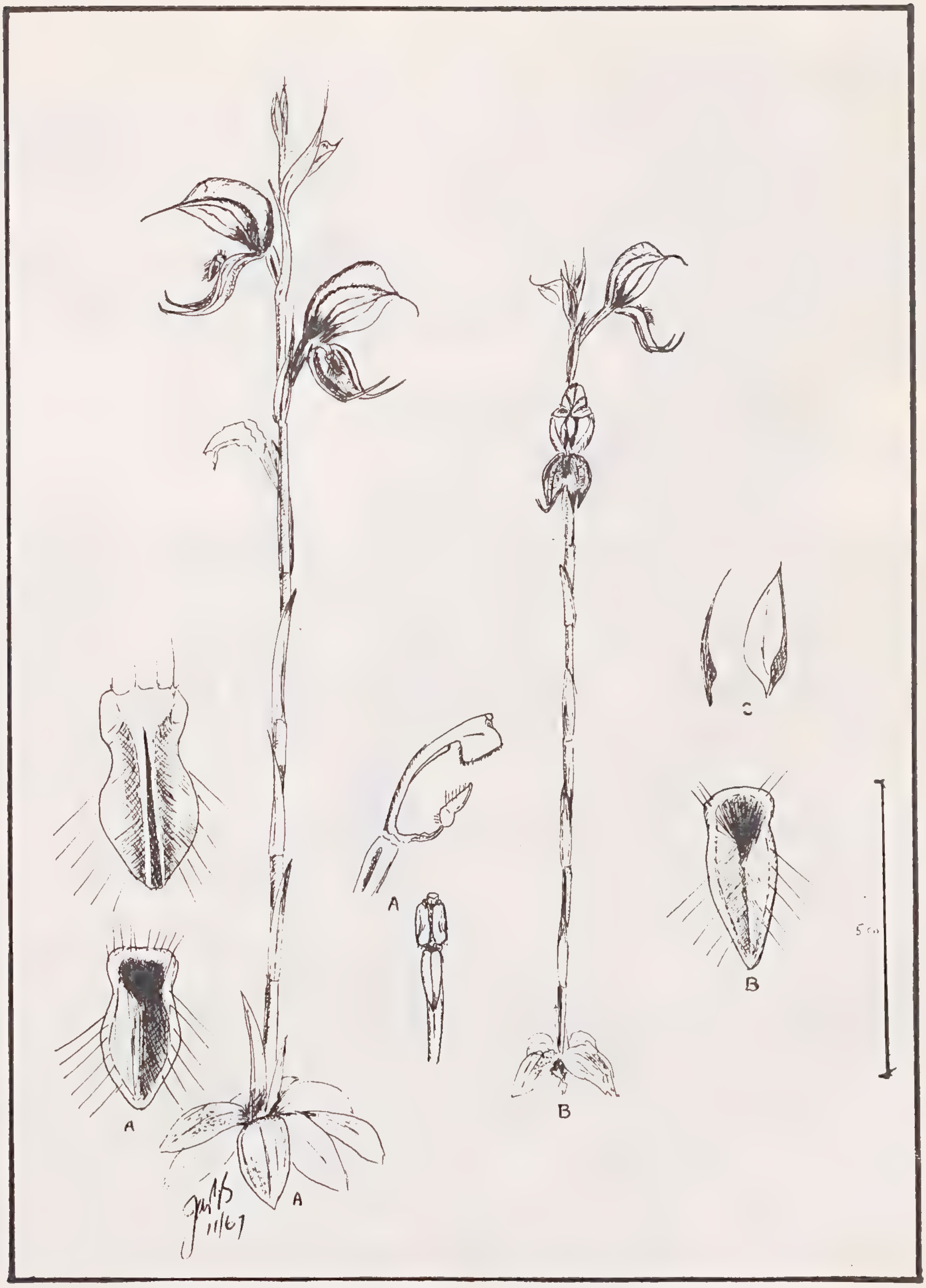
4. PTEROSTYLIS HAMATA Blackmore et Clemesha sp. nov.

Holotype: Koorawatha N.S.W. B. Whitehead 29.10.1966 (NSW 85470).

Planta saepe robusta, alta 10 - 40 cm. Flores 2 - 10 virides fuscorufique, rari pellucidi. Galea curvata tota in longitudine cum acumine filiforme declinatoque; margo interior utriusque petali cum tubere densata. Sepala lateralia glabra ad bases per tertiam partem connata deinde disjuncta sed haud multum divergentia cum acuminibus filiformibus, hamatis, ad apicem sursum curvatis. Labellum lanceolatum multo canaliculatum; setae circa 8 paria marginibus in lateralibus; basis tumida cum 4 - 14 setis. Columna alta 15 mm.; alae columnae latae orthogoniacque circa 4 mm. x 2 mm., marginibus ciliatis; stigma lanceolata.

Generally a very robust plant 14 - 40 cm. high. Basal leaves 4 - 8 ovate, green or withered at flowering time; stem bracts 2 - 8. Flowers 2 - 10 or even more, semi erect. Galea translucent with green or green-brown veining; curved for all its length or somewhat angular and flat on top, ending in a filiform point about 3 mm. which points downwards or downwards and inwards. Petals translucent with few green-brown veins, terminating at the base of this point, 13 mm. x 4.5 mm. when removed and pressed, each bearing a prominent swelling near the base, these looking like a pair of near touching tonsils. Lateral sepals light brown or green-brown with translucent spaces and prominent veining, generally with the ends turned upwards in a hook-like fashion, glabrous, about 16 mm. x 9 mm. (in fresh specimens, not ones which are pressed flat), margins curved forwards to almost involute, united for their basal third, then almost touching to

continued page 156.



A & B Pterostylis hamata Blackmore and Clemesha

A Robust plant from Koorawatha N.S.W., but many taller.

B Less robust plant from Dripstone N.S.W.

C Thickening of petal edge.
Details variously enlarged.

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued

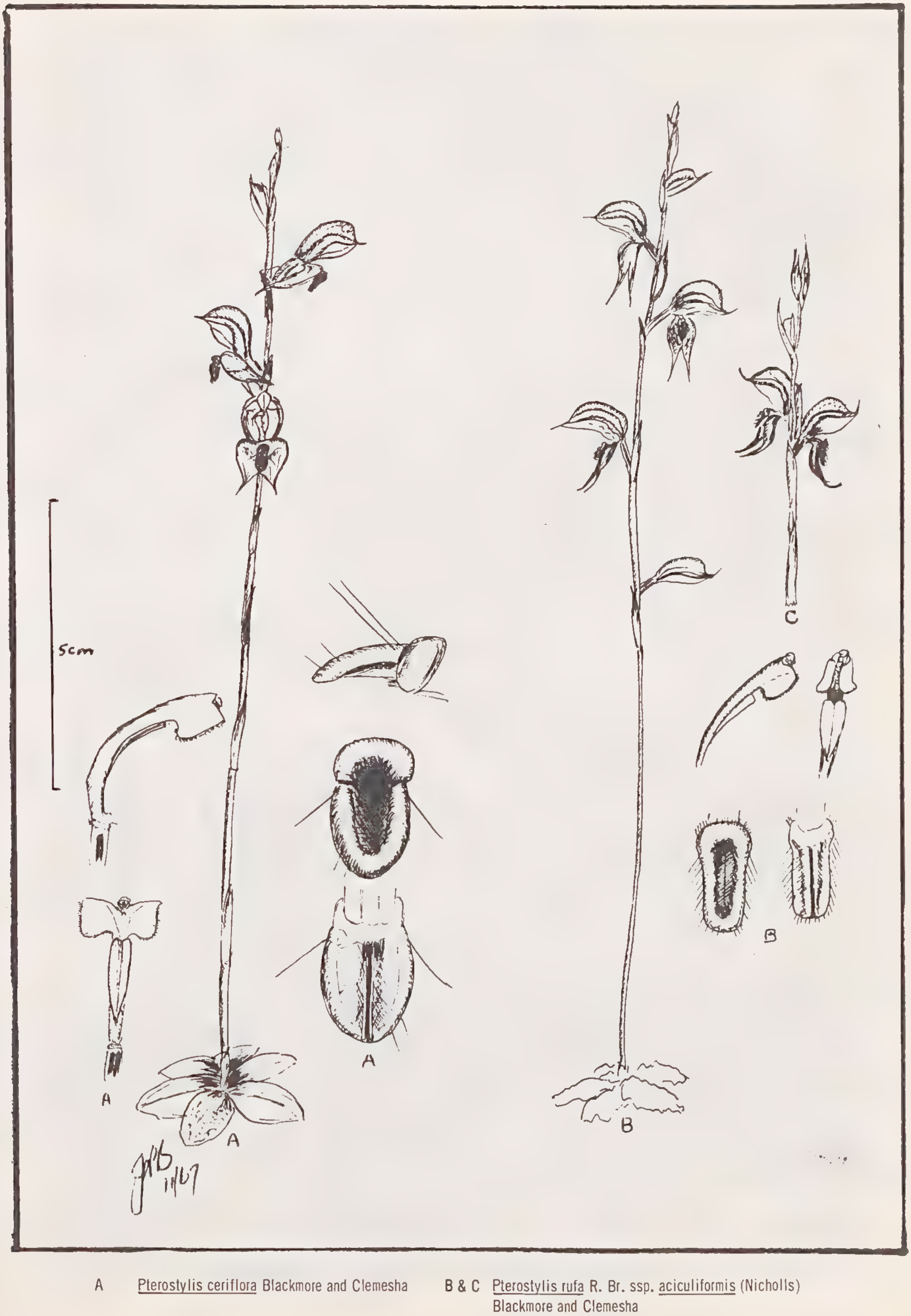
the point where they constrict into filiform points. Filiform points about 4 mm. long, rigid, almost parallel to slightly divergent, margins involute. Labellum on an irritable claw about 2/3 its length, generally dark red-brown but sometimes paler, lanceolate but varying in width from rather narrow to broad, 5.5 mm. x 2 mm., upper surface deeply channelled, channel wide with a rather thin margin. Under surface pale near base with a channel widening near the apex. Lateral margins bearing about 8 pairs of setae; appendage reduced to a basal swelling, lower than the lamina, bearing from 4 to about 12 setae. Column 14 - 15 mm. high, wings 4 mm. x 2 mm. Margins ciliate. Stigma lanceolate and slightly wider than the column.
Flowering Period: September to November, but chiefly October.
Distribution: In N.S.W. from the tablelands to ridges of the western plains from the Nandewar Range southwards to northern Victoria where apparently rare then westward to South Australia where at present known only from Halbury. A poor specimen from Stanthorpe, Queensland probably is P. hamata. It may extend to Western Australia. In N.S.W. it is locally common in some areas e.g. Weddin Range west of Grenfell and near Wagga.
References: - As P. squamata.

Rogers, in Black, Fl. S. Austr. 248 (1922).
Nicholls, Vict. Nat. 43:106 fig. 28 (1926).
Nicholls, in Barrett, Sun Nature Book n. 5:39 (1934).
Nicholls, in Vict. Nat. 53:136 (1936).
Erickson, Orch. West, 43 and 39 t. 11 (1952).
Willis, Handb. Pl. in Vict. 417 (1962).
Blackmore, The Orchadian 1, 6, 66 (1964).
Brinsley, Austr. Orch. Rev. Vol. 30 p. 126 and 129. Vol. 32:99 (1967).

The holotype has been selected from specimens collected by B. Whitehead (in a locality discovered by W.E. & F. Giles) at Koorawatha N.S.W. and lodged with the National Herbarium N.S.W. The specific name means "hooked" and refers to the shape of the lower sepals. This characteristic has not been observed in any other member of the group except in the case of flowers which have only recently opened and have not taken up their fully opened shape.
P. hamata is unique in the group in having the tonsil-like swellings at the base of the galea. These swellings very effectively combine with the labellum to close the galea and thus form part of the pollinary mechanism. In other members of the group especially P. biseta there is a suggestion of these as a thickening of the margin of the petals but they never are near touching or as prominent as those of this species. P. hamata is also the robust member of the group. Its stems bear up to 8 bracts and since the stem is stouter these bracts are also frequently large and prominent. Consequently, when this species was first recorded by W.H. Nicholls in 1926 it was assumed to be. P. squamata R. Br.

5. PTEROSTYLIS CERIFLORA Blackmore et Clemesha sp. nov.
Holotype: Lake Illawarra N.S.W. J.A.P. Blackmore 27.9.1967 (NSW 85471).
Planta gracilis alta 15 - 43 cm. Flores 2 - 7, cerei nitentes erecti et mali viriditatis aut plane aut paene cum purtibus pellucidis. Galea 23 - 25 mm. circum curvum, terminus brevis acumenis longum 1.8 - 2 mm.
Sepalia lateralia contra ovarium reflexum, circa longa 14 - 16 mm. et lata 12 - 14 mm. per dimidiam portem basa connata, deinde lata et separata deinde terminantes acuminibus brevibus. Labellum fuscissimum latum lanceolatum 5 mm. x 4 mm., crassissimum, multo canaliculatum. Columna alta 12 - 13 mm., viridis, alae 4 mm. x 3 mm. paene quadratae.
A slender plant 15 - 43 cm. high, basal leaves green or withered at flowering time, 4 - 7, ovate to near round - stem bracts 3 to 5, widely spaced. Flowers 2 - 7, waxy and shiny in appearance, erect, wholly bright apple green, or nearly so in our specimens; galea with translucent spaces, 23 - 25 mm. around the curve, higher than in any other species of the group, curved for all its length, ending in a short upturned acuminate point 1.8 - 2 mm. long. Petals terminating at the base of this point and curved out from the dorsal more than in the other species of the group, 12 x 4 mm. when removed from the flower and pressed flat. Lower sepals inconspicuously ciliate or glabrous, conspicuously gibbous above the sinus, reflexed against the ovary in an almost horizontal position and often with the sinus pressed against the ovary, about 14 - 16 mm. long including the 3 - 4 mm. filiform tip, 12 - 14 mm. wide, united for the basal half then broad and divergent before constricting into short points. Labellum on an irritable claw, almost black in appearance but when examined closely, very dark brown, broad lanceolate, tip obtuse, about 5 mm. long and 4 mm. broad, thicker than in any other species of the group, deeply and narrowly channelled above; channel about one third the total width of the labellum, margins often

continued page 158.



A Pterostylis ceriflora Blackmore and Clemesha

B & C Pterostylis rufa R. Br. ssp. aciculiformis (Nicholls)
Blackmore and Clemesha
Details variously enlarged.

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued

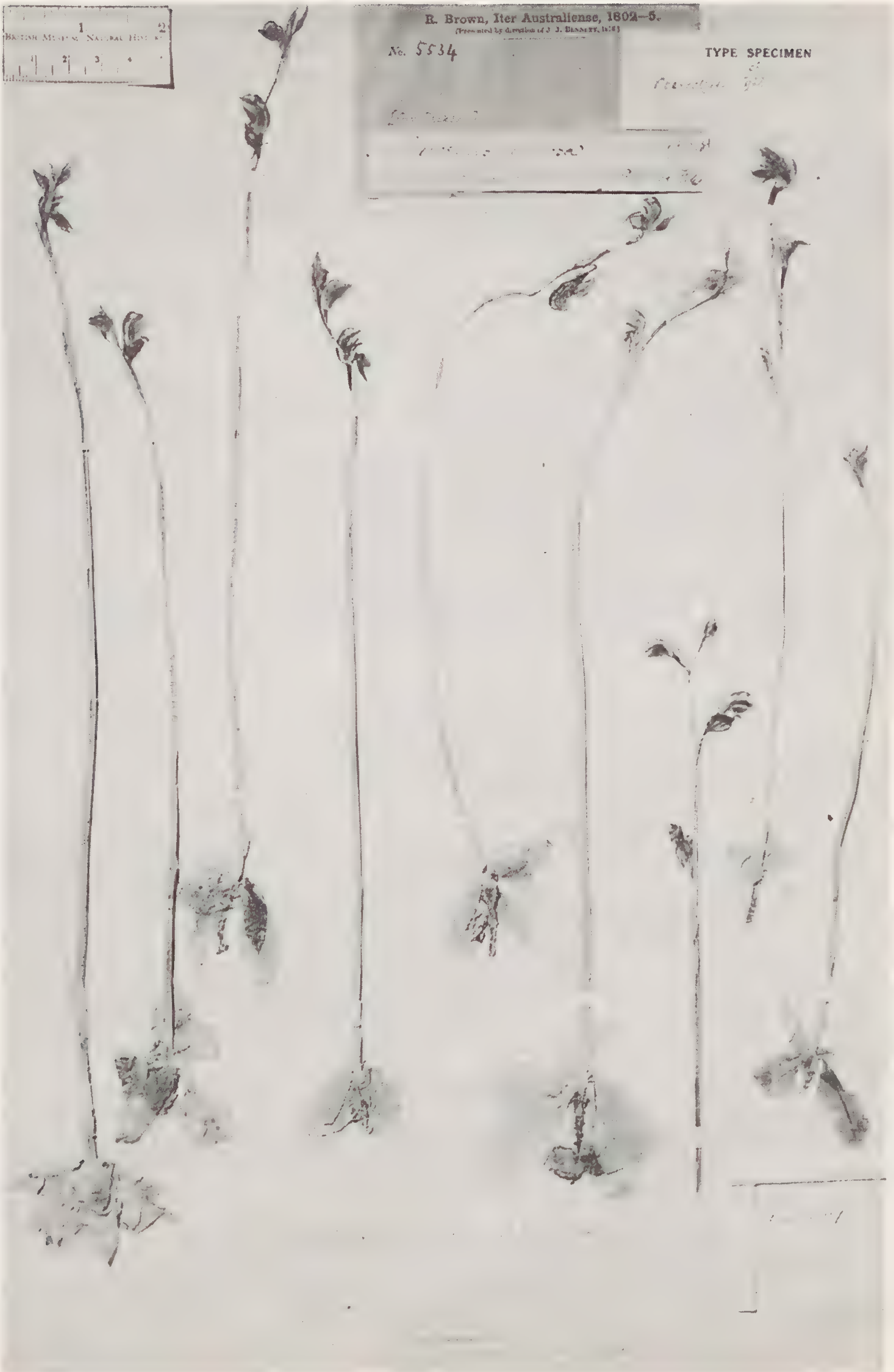
having a rolled edge, forming a rim on both upper and lower surfaces. Lamina of lower surface sloping up to a high channelled central ridge. Appendage reduced to a basal swelling which, unless carefully examined, appears as a back to the deep central channel but, if examined closely, is seen to be separated by a narrow channel extending from side to side. Setae variable but generally one large pair at the base of the lamina and sometimes with others towards the apex or even missing entirely. Appendage setae very short and barely visible. Column 12 - 13 mm. high, green, upper lobes almost absent, wings 4 mm. x 3 mm. and almost square in outline. Inner margins ciliate. Stigma long and narrow.
Flowering Period: Late August to early November.
Distribution: Known only from the type locality where discovered in August 1967 by Mr. B. Whitehead of Dapto. The amount of bushland in the area is limited but P. ceriflora is scattered in moderate numbers as are P. mutica and P. rufa ssp. rufa in smaller numbers. About forty specimens have been examined by the authors and these showed no significant variation, except in the presence and number of setae on the labellum Mr. Whitehead has seen considerably more specimens of P. ceriflora and also reports no significant variation. In view of the discovery of this distinct orchid in the unlikely N. S. W. south coast area it should now be looked for elsewhere.
P. ceriflora like P. mutica R. Br., has waxy shining bright apple green flowers (the specific name refers to the wax-like flowers). Its near black labellum forms a similar contrast with the rest of the flower to that formed by the dark labellum appendage of P. cycnocephala FitzG. and the coastal form of P. mutica (the inland form being all green). P. ceriflora is unique in the genus in its short broad segments, the position of the lateral sepals, which are reflexed back against the ovary in an almost horizontal position, and the resulting exerted position of the short, thick, dark labellum. In height, tall specimens of P. ceriflora are only rivalled by the most robust specimens of P. woollsii and P. hamata. It is nearer to P. gibbosa ssp. gibbosa than any other member of the group and shares with it the characteristic of being conspicuously gibbous above the sinus. (It is even more pronounced in P. ceriflora than in P. gibbosa.) The two species however are quite distinct and easily separated by the following table. Intermediate forms are unknown.

	P. ceriflora	P. gibbosa ssp. gibbosa
1.	Flowers green with a contrasting near black labellum.	Apart from some greenish striations on the galea, flowers brownish with a similar coloured labellum.
2.	Galea higher and ending in a shorter point.	
3.	Lower sepals shorter, broader, widest part near base then curved inwards to where they constrict rather suddenly into out-turned short points, reflexed back against the ovary and sometimes slightly ciliate.	Lower sepals glabrous, gently curved outwards to the widest point which is near the middle then curved inwards where they constrict much more gradually than in P. ceriflora into filiform points longer than in P. ceriflora.
4.	Labellum thicker, channel narrow and deep about 1/3 width of the lamina.	Labellum channel wide and more than ½ of the width of the lamina.

In poor dried specimens where all details of colour and labellum are lost the above two plants are at times hard to separate but the comparative sepal lengths and the position of the widest part of the lower sepals mentioned in the above table are quite reliable guides.

6. PTEROSTYLIS GIBBOSA R. Br. Prodr. 328 (1810).
A slender plant 30 cm. high, leaves basal, ovate, green or withered at flowering time. Bracts 2 - 7, flowers 1 - 7 near erect; green with rufous tints. Galea including 4 - 9 mm. upturned filiform point 1.8 cm. - 2.5 cm. long, curved for all its length. Petals terminating where the dorsal sepal begins to turn upwards 11 - 13 x 4 - 5 mm. when removed from the flower and pressed. Lateral sepals 15 - 18 mm. x 4.5 - 5 mm. gibbous above the sinus united for about 1/3 - 1/4 of their length then contracting into filiform caudae 5 - 9 mm. long. Labellum on a very irritable claw, broad lanceolate 6 - 6.5 mm. x 2.5 - 3.5 mm., widely and shallowly channelled. Setae marginal, 4 - 8 pairs. Column about 12 mm. long, upper lobes almost absent, wings 3 mm. x 2 mm. anterior margins densely ciliate. Stigma lanceolate, about the width of the column.
Flowering Period: August to November.

continued page 160.


1
2
British Museum Natural History
R. Brown, Iter Australiense, 1802—5.
(Presented by direction of J. J. Bennett, 1876)
No. 5534
TYPE SPECIMEN

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued

Distribution: From the Cumberland plain west of Sydney N. S. W. to near Rockhampton QLD. extending to inland areas of the north western slopes and southern Queensland.

A species of two subspecies.

Key to the subspecies of Pterostylis gibbosa

Lower sepals conspicuously gibbous above the sinus, 14 - 16 mm. x 5 mm., filiform for their anterior third, dorsal sepal filiform for about 1/5 its total length.
Labellum setae 4 - 5 pairs generally with 1 prominent pair on either side of the base of the lamina.
.... ssp. gibbosa

Lower sepals slightly gibbous above the sinus 16.5 - 18 mm. x 4.5 - 5 mm., filiform for their anterior half, dorsal sepal filiform for about 1/3 its total length.
Labellum setae 6 - 8 pairs.
.... ssp. mitchellii

ssp. GIBBOSA

This subspecies has shorter rounder sepals and petals which have correspondingly shorter filiform points. Its labellum is shorter, wider and thicker than that of ssp. mitchellii and generally bears less setae and usually with a prominent pair at the base of the lamina.

Flowering Period: September to October.

Distribution: The Wianamatta shale Cumberland plain west and north west of Sydney extending to shale areas of the lower Blue Mountains and to a slight extent adjacent sandstone country, but to date rarely seen and then often only singly. e.g. Glenbrook, Lapstone Hill, Windsor, Sackville, Emu Plains, Glenhaven, Rookwood, Woronora River. Two specimens in the National Herbarium of N.S.W. (one from Tooloom N. S. W. and the other from Neath, South Maitland coalfield, N. S. W.) appear to be close to ssp. gibbosa but apart from these ssp. gibbosa appears to be entirely replaced by ssp. mitchellii in areas north of the Sydney plain. The above description was prepared from material from Glenhaven, Lapstone Hill, Windsor and mainly from fresh Sackville specimens. Throughout its range this subspecies has shown no more variation than that found in a single colony.

References: Benth. Fl. Austr. VI (1873).
FitzG. Austr. Orch. 1, 2 (1876) (as P. rufa).
Rupp, Guide to the Orch. of N. S. W. 116 (1930) - Illustr. only - as P. rufa (the accompanying description should be referred to P. biseta)
Rupp, Austr. Orch. Rev. 10:19 (March 1945) as P. mitchellii.

The plant illustrated by FitzGerald in Austr. Orch. 1, 2 (1876) as P. rufa appears to the authors to be P. gibbosa ssp. gibbosa but this illustration cannot be regarded as a particularly good one. It is open to conjecture whether or not the curious "sea urchin" appendage to the labellum is the result of an error in observation or drawing, or from an aberrant plant.

Bentham reduced P. gibbosa to a synonym of P. rufa as a "tall luxuriant form" but it bears no resemblance to P. rufa and clearly is a valid species.

The type collection was made between Parramatta and Green Hills (now Windsor). A photograph of it was received from the British Museum. It bears 9 specimens which are not in particularly good condition. The correct identity of P. gibbosa ssp. gibbosa was established after careful comparison with fresh and pressed specimens. Some of the author's specimens of ssp. gibbosa are an excellent match for the type specimens and could well have been the same plants when pressed.

The specific name means projected into a humped swelling and is not only applicable to the swelling above the sinus but to the whole flower - as both the galea and lower sepals are very full and rounded in appearance and end in filiform points, so it could well be said they are projected into humped swellings towards the base.

P. gibbosa ssp. gibbosa has been confused with P. gibbosa ssp. mitchellii and has been called P. rufa in the area adjacent to Sydney in the past, when the true P. rufa was regarded as P. pusilla Rogers var. pusilla and P. pusilla var. prominens Rupp.

P. rufa is quite plentiful in the general Sydney area where P. gibbosa ssp. gibbosa is found. The authors have not seen any fresh specimens of P. gibbosa ssp. mitchellii from this area but it could quite conceivably be present.

continued page 161.

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued.

ssp. MITCHELLII (Lindl.) Blackmore et Clemesha comb. et stat. nov.

Basionym: P. mitchellii Lindl., Mitchell, in Trop. Austr., 365 (1848).
Synonym: P. rufa R. Br. ssp. mitchellii (Lindl.) FitzG. in Moore & Betche, Handb. Fl. N.S.W. 401 (1893)

A slender plant up to 30 cm. high; leaves basal, ovate, green or withered at flowering time. Bracts 2 - 7, flowers 1 - 7 near erect. Galea including 8 - 10 mm. upturned filiform point 2.3 - 2.5 cm. long, curved for all its length. Dorsal sepal green with translucent spaces; petals terminating where the dorsal sepal begins to turn upwards, 12 - 13 mm. x 5 mm. when removed from the flower and pressed, translucent light brown shading and one or two striations. Lateral sepals 16-18 mm. x 5 mm. (in fresh specimens - longer and broader when pressed flat), united for about ¼ their length then contracting into filiform caudae more gradually than in other members of the group and finely filiform for about half their length, light brown shading to greenish brown in the centre. Labellum on a very irritable claw, margins slightly upturned forming a wide shallow channel, deep red-brown, broad lanceolate, 6 mm. x 2.5 mm., set almost 1 mm. above the appendage and darkest at the base of the lamina (sometimes making it appear as if there is a hole at this point). Midrib inconspicuous and forming a slight ridge in the anterior third. Setae marginal, 12 - 16, longest pair at the base, appendage reduced to a basal swelling, flat, bluntly obtuse with about 10 erect setae. Column about 12 mm. long, upper lobes almost absent, wings 3 mm. x 2 mm. anterior margins densely ciliate. Stigma lanceolate about the width of the column.
Flowering Period: August to November but chiefly September and October.
Distribution: South Queensland - near coast and inland extending almost as far north as Rockhampton. N.S.W. north coast as far south as Weston and a few areas of the north western slopes and plains e.g. Warialda and Tia Falls, Walcha district and locally common in some areas e.g. Taree N.S.W. and Tambourine Mountain QLD.
Recorded from west of Sydney, but all specimens examined by the authors are P. gibbosa ssp. gibbosa. P. gibbosa ssp. mitchellii was formerly considered to extend to Victoria, South Australia and Western Australia but all these records refer to other species.
The type material was collected by the explorer, Sir Thomas Mitchell at "Mt. Kennedy on the Maranoa" - near Roma in southern Queensland. The following recordings of P. rufa should be transferred to P. gibbosa var. mitchellii.

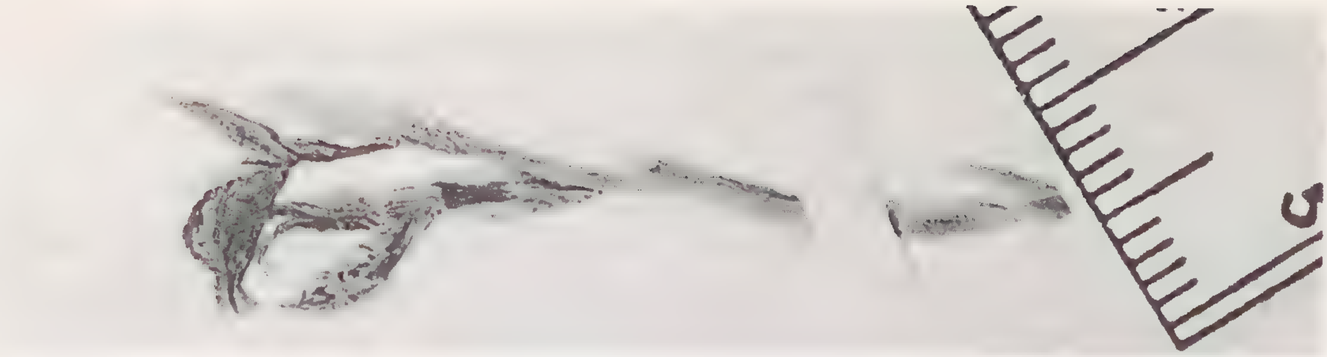
Moonbi N.S.W. Betch 10 - 1886.
Brisbane to Rockhampton QLD., near the coast and inland, F.M. Bailey; Burleigh Heads QLD. C.P. Ledward.
Cundletown, Boorman 10 - 1902.
Hookswood near Miles QLD. Edith J. Adams 9 - 1916
Paterson N.S.W. Parrish 9 - 1926.
*South Maitland Coalfields, Rupp 10 - 1931.

*P. rufa has been recorded from South Maitland Coalfields as P. pusilla Rogers var. pusilla and P. pusilla var. prominens Rupp.

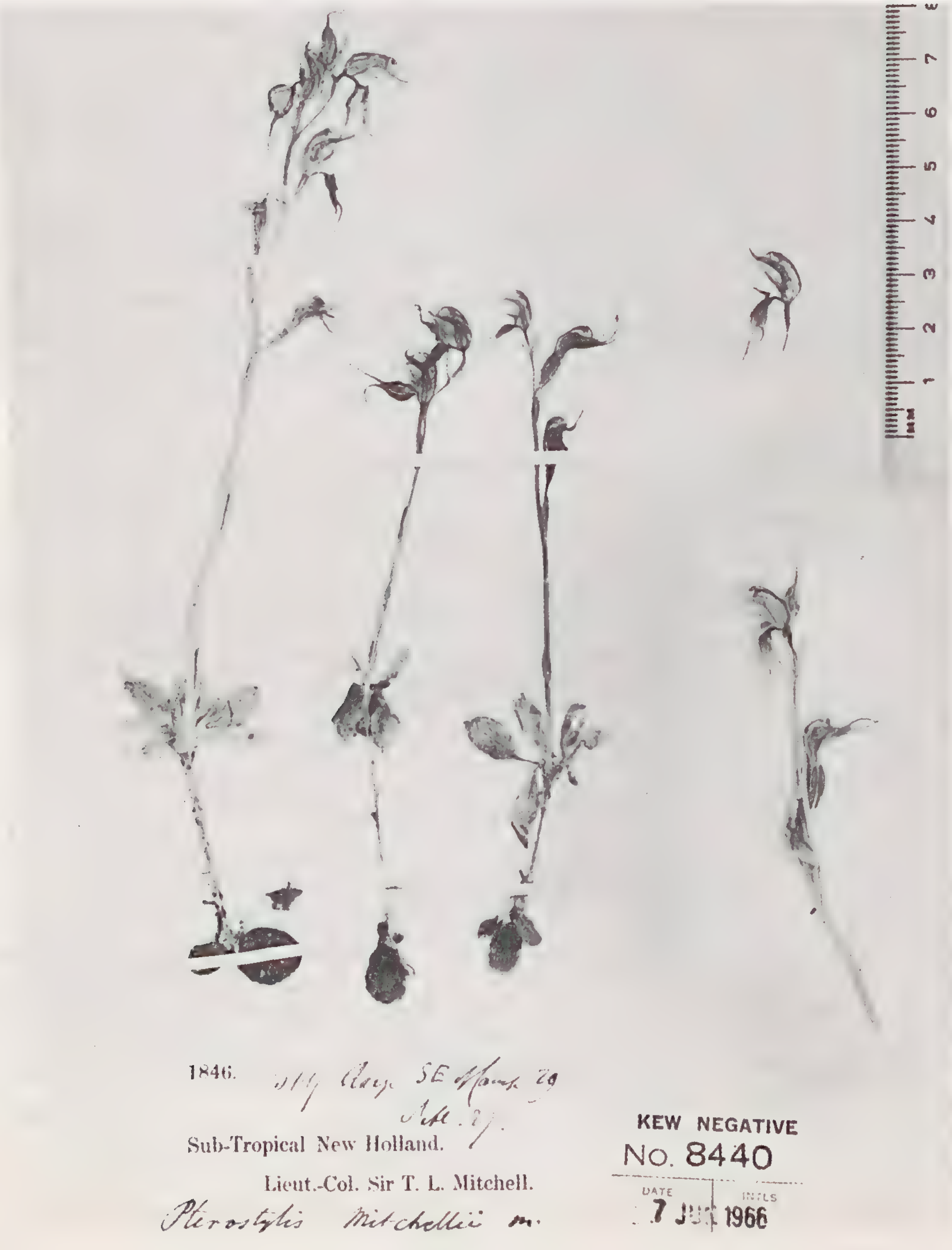
References: Fiveash, in Rogers, Trans. Roy. Soc. S. Austr. 38: t. 15 (1914).
Rogers, in Black, Pl. S. Austr. 248 (1922).
Rupp, Proc. Linn. Soc. N.S.W. 50:309 fig. 9 (1925).
Rupp, Guide to the Orchids N.S.W. 117 (1930).
Nicholls, in Barrett, Sun Nature Book n. 5:35 (1934).
Rupp, Orch. N.S.W. 96 (1943).
Garnet, Wildlife, 5:329 (1943).
Erickson, Orchids of the West t. 14 fig. 12 (1951).
Willis, Handb. Fl. Vict. 416 (1962).
Blackmore, The Orchadian 1, 69 (1964) and fig. 4, 67.
Brinsley, Austr. Orch. Rev. Vol. 32, 2, 101 (1967).

The last reference is a good depiction of P. gibbosa ssp. mitchellii - however most of the others appear to be based on other species or P. gibbosa ssp. gibbosa.
A photograph of the type collection at Kew agrees very well with the subspecies described above (from material from Taree and Weston N.S.W.). As few accurate illustrations of this plant have been published and the descriptions have been brief, vague, or inaccurate and of little value for identification purposes the full description above, is considered necessary by the authors. This subspecies is the plant which in N.S.W. north coastal areas and southern Queensland at least, has long been accepted as P. mitchellii. However, this subspecies has been confused with most

continued page 163.



Close up of part of type specimen of Pterostylis squamata R. Br.


1
2
3
4
5
6
7
8
1846.
Sub-Tropical New Holland.
Lieut.-Col. Sir T. L. Mitchell.
Pterostylis Mitchellii m.
KEW NEGATIVE
No. 8440
DATE
INTLS
7 JUL 1966

A Review Of The So-Called "Rufous Group" Of The Genus Pterostylis. Continued

other members of the group (except P. woollsii and P. ceriflora). Consequently its distribution was most uncertain.

P. gibbosa ssp. mitchellii is a much more widespread plant than P. gibbosa ssp. gibbosa and must be considered the major form of the species but the long priority of P. gibbosa necessitated this treatment.

Some large specimens of P. gibbosa ssp. gibbosa appear to be sufficiently distinct to justify separation from ssp. mitchellii but smaller ones are not easily separated if seen singly, particularly when the labellum is narrow and approaches the shape of that of ssp. mitchellii.

As the two plants have very similar appearances in the field, the authors feel that subspecific separation is desirable and that to treat this plant as a species would only cause confusion.

The following table will assist in separation of the two subspecies.

	P. gibbosa ssp. gibbosa	P. gibbosa ssp. mitchellii
1.	Galea shorter and rounder.	
2.	Filiform tip shorter, about 1/5 of the total length around the galea.	Filiform tip about 1/3 of the total length around the galea.
3.	Lower sepals shorter e. g. 14.5 - 15 mm. x 5 mm., filiform for their anterior third.	Lower sepals typical measurement 16.5 - 18 mm. x 5 mm., filiform for their anterior half.
4.	Labellum typically about 6.5 mm. x 3.5 mm., wider, shorter and thicker than in ssp. mitchellii with blunt or rounded tip - often thickened.	Labellum typically about 6 mm. x 2.5 mm., frequently with pointed tip.
5.	Setae 4 - 5 on each side of labellum generally 1 prominent on each side of lamina.	Setae 6 - 8 on each side of labellum.

7. PTEROSTYLIS RUFA R. Br., Prodr. 327 (1810).

Up to 30 cm. high, 1 - 13 flowers. Leaves 4 - 8 green or withered at flowering time; stem bracts up to 6. Flowers erect or nodding green to rich red-brown. Galea curved for all its length, 18 - 20 mm. long and ending in acuminate or filiform point. Lower sepals 11 - 15 mm. x 3.5 - 5 mm. glabrous and often with involute margins, united for their basal third then extending into acuminate or filiform points. Labellum on an irritable claw about 2/3 its length, 4.5 - 5 mm. x 1.2 - 1.5 mm. red-brown with a green base, oblong with a blunt or very minutely emarginate apex. Lamina lower than margins, lateral margins bearing about 8 setae. Appendage reduced to a basal swelling, paler than the lamina, pointing upwards towards the column wings, rather blunt, setae numerous but very short. Column 11 mm. high, upper lobes obsolute, lower wings 3 mm. x 2 mm., anterior margins ciliate and inturned.

Stigma membranously expanded, wider than the column.

Flowering Period: Chiefly September to November.

Distribution: All states and widely distributed in N.S.W., Victoria and South Australia, uncommon in Tasmania, localised in Queensland (Stanthorpe district) and rare in Western Australia where confined to wheat belt areas of the south west.

A species of two subspecies.

Key to the subspecies of Pterostylis rufa

Sepals not extending into fine points and flowers more or less nodding. ..... ssp. rufa

Sepals ending in fine points over 2 mm. long and flowers not nodding. ..... ssp. aciculiformis

(a) ssp. RUFA

Synonymy: Pterostylis squamata R. Br. l. c. (non Hook f.)
Pterostylis rufa var. squamata (R. Br.) FitzG. in Moore & Betche, Handb. Fl. N.S.W. (1893) 401.
Pterostylis pusilla Rogers var. prominens Rupp, in Proc. Linn. Soc. N.S.W. LVI (1931) 136 - 7.

continued page 164.

A Review Of The So-Called "Rufous Group" Of The Genus *Pterostylis*. Continued.

Up to 30 cm. high, 1 - 13 flowered. Flowers nodding, on pedicels (including ovary) 15 - 25 mm. long, greenish red to rich red-brown with translucent spaces on the dorsal sepal, sepals ending in short acuminate points.

Flowering Period: Chiefly September and October.

Distribtution: From Stanthorpe, Queensland, through coastal and inland N.S.W. to Victoria where extending at least as far west as Portland district and Tasmania where rare and chiefly eastern. Formerly recorded from South Australia and Western Australia but all specimens examined by the authors appear to be ssp. *aciculiformis*.

References: Benth., Fl. Austr. VI (1873) 363.
Archer and Fitch, in Hooker f., Flor. Tasm. 2 t. 116. fig. B, Col. (1858).
Fiveash, in Rogers, Trans. Roy. Soc. S. Austr. 42 (1918) 26. (as *P. pusilla*).
Rupp, Guide to Orch. N.S.W. 116 (1930) (as *P. pusilla*).
Nicholls, in Barrett, Sun Nature Book n. 5:37 (1934) (as *P. pusilla*).
Rupp, Orch. N.S.W. 99-100 (1943) (as *P. pusilla* var. *pusilla* and *P. pusilla* var. *prominens*).
Erickson, Orch. West t. 44, illustr. 39, t. 14 (1951) (as *P. pusilla*).
Willis, Handb. Pl. Vict. 415 (1962) (as *P. pusilla*).
Firth, Nat. Orch. Tas. 76 (1965) (as *P. squamata* R. Br. non Hooker f. and *P. pusilla*
Blackmore, The Orchadian 1, 68-70, illustr. t.e. 67 (June 1964) (as *P. pusilla* var. *pusilla* and *P. pusilla* var. *prominens*).
Brinsley, Austr. Orch. Rev. Vol.30. No. 3, 126, illustr. 129 t. 16-17 (Sept. 1965) (as *P. pusilla* var. *prominens*) and vol. 32, No. 2, 97 (June 1967) (as *P. pusilla* var. *prominens*).

The specific name means reddish and is very appropriate.

The above description was prepared from specimens from Weston N.S.W., six areas west of Sydney, Lake Illawarra N.S.W., Greensborough, VIC. and Wallangarra on the border of N.S.W. and QLD. This variety shows no significant variation.

The true identity of *P. rufa* ssp. *rufa* was readily established from the photographs of the type material from the British Museum and of duplicate material from Kew. The numerous specimens on these sheets are in excellent order, and were originally collected in the "Port Jackson" area. Accompanying the type photographs of *Pterostylis rufa* were photographs of the type material of *Pterostylis squamata*. R. Br. non Hook. f. (originally collected at Mt. Wellington, Tasmania). The specimens on this sheet are few and poor, but enough details are present to clearly ascertain that this species is synonymous with *P. rufa*. The species in Tasmania and Victoria tends to be more robust and often has a greater development of stem bracts. *P. rufa* is the only member of the group found in Tasmania and it has recently been recorded from Mt. Wellington district by Miss P. Palmer. Brown's brief description of this species is word for word the same as that of *P. rufa* except for the details of the stem bracts.

Rupp's type specimen of *P. pusilla* var. *prominens* Rupp is an excellent match for some of the larger specimens on the type photograph of *P. rufa*.

Fiveash's plate accompanying Rogers' original description of *P. pusilla* is a good example of a small specimen of *P. rufa* ssp. *rufa*. Rogers does not appear to have left a sheet marked as the type of *P. pusilla* but a sheet from Geranium, S.A. 1-10-1917, appears to be such.

The specimens on this sheet are examples of a small form of *P. rufa* ssp. *aciculiformis*. On another sheet containing two specimens of *P. rufa* ssp. *rufa* from Greensborough, Vic. and one from the Grampians, collected in November 1917 and forwarded by E. Pescott, Rogers noted: "These plants though larger are the same as the new species from Geranium". The description of *P. pusilla* was based on the Geranium plants while the illustration by Fiveash was based on the Victorian plants.

(b) ssp. *ACICULIFORMIS* (Nicholls) Blackmore et Clemesha comb. et stat. nov.

Basionym: *P. pusilla* Rogers var. *aciculiformis* Nicholls, in Vict. Nat. 52:167 (1936)

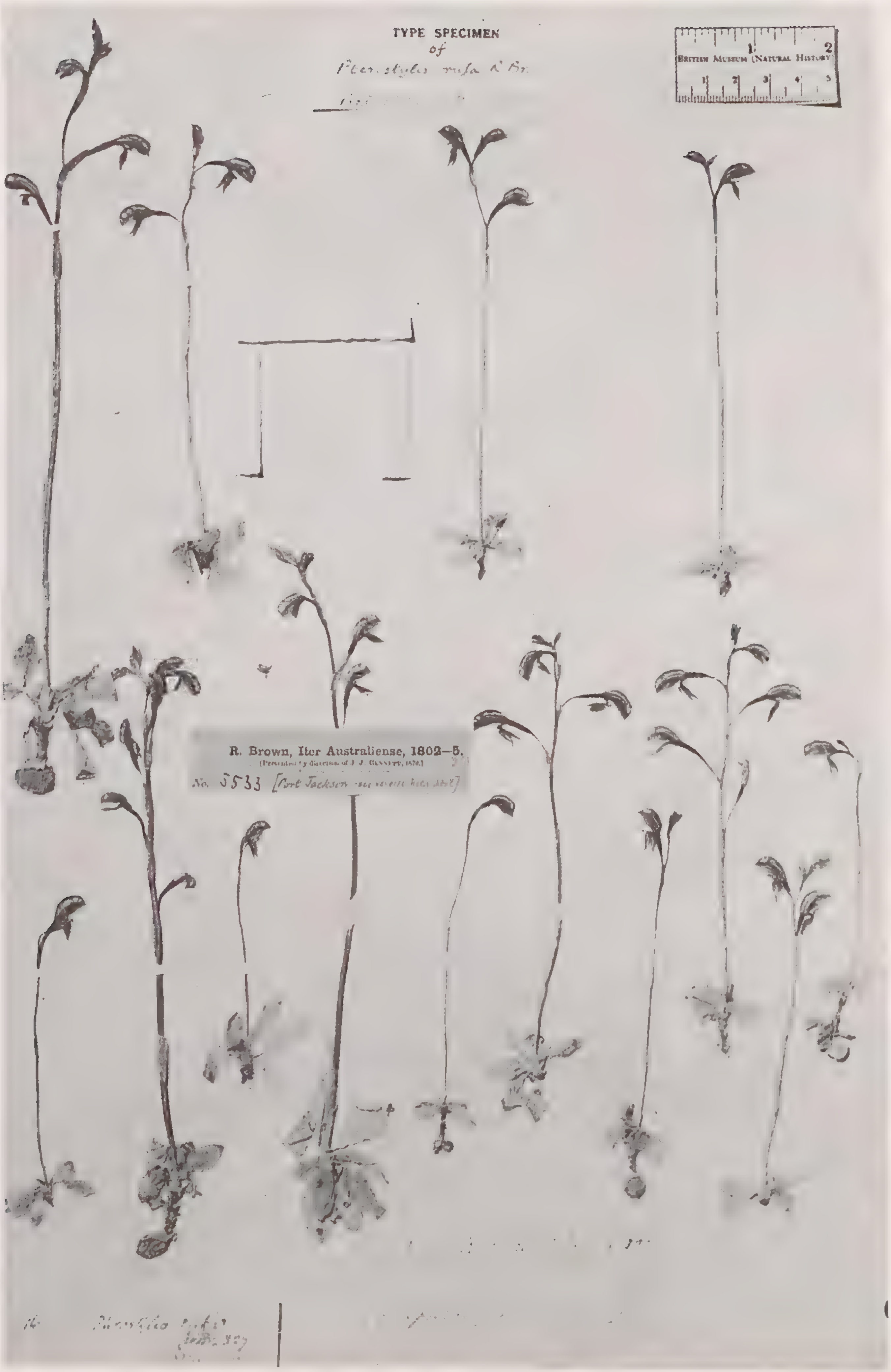
Synonym: *P. pusilla* Rogers, in Trans. Roy. Soc. S. Austr. 42, 26 (1918) var. *pusilla*.

Generally similar to ssp. *rufa* but differing in having more erect flowers which generally have fewer brown markings than those of ssp. *rufa* and sometimes are all green. All floral segments are longer and narrower than those of ssp. *rufa* and the sepals end in short filiform needle-like points.

Flowering Period: September to December.

Distribution: From the tablelands to the ridges of the western plains from at least as far north

continued page 166.


TYPE SPECIMEN
of
Pterostylis rufa R. Br.
British Museum (Natural History)
R. Brown, Iter Australiense, 1802–5.
No. 5533 [Port Jackson

A Review Of The So-Called "Rufous Group" Of The Genus *Pterostylis*. Continued.

as Coonabarabran and the Warrumbungle Ranges N.S.W. south to Victoria where found chiefly in western areas. In South Australia it extends at least as far west as the Flinders Ranges at the top end of St. Vincent Gulf, and specimens from Geranium westward are much smaller than those in far south east South Australia, Victoria and N.S.W. Specimens in the National Herbarium of N.S.W. collected at Kumarl W.A. appear to be a form of *P. rufa* ssp. *aciculiformis* that is larger than any of those found in the eastern states but until fresh or better pressed specimens are seen, the identity of these specimens must remain doubtful. Probably most Western Australian records of *P. pusilla* refer to *P. rufa* ssp. *aciculiformis*.

References: FitzG. Austr. Orch. 1, 6 (1880) as *P. mitchellii*.
Rogers, in Black, Fl. S. Austr. 248, 17 (1922) (as *P. pusilla*).
Willis, Handb. Pl. Vict. 415 (1962) (as *P. pusilla* var. *aciculiformis*).
W. Brinsley, Austr. Orch. Rev. vol. 30 p. 129 (1965) and vol. 32 p. 97 and 101 (1967) (as *P. pusilla* var. *aciculiformis*).

W.H. Nicholls described his variety as a small, all green plant with needle-like points to the sepals (the varietal name meaning with needle-like points). It will be noted from the amended description above that the all green colouring is not the most usual colour to be found. Nor is the plant always short. However the filiform points separate it from *P. rufa* ssp. *rufa*. Particularly in specimens where the tip of the dorsal sepal is upturned, this plant has a superficial appearance in the field closer to a small *P. mitchellii* or *P. boormanii* rather than *P. rufa* ssp. *rufa*. The authors considered the question of whether or not this variety was entitled to specific rank but decided against this. The filiform points to the sepals are practically the only major distinguishing feature and although intermediate forms with short points do not appear to be common they are not unknown. The labellum is usually longer and narrower thant that of ssp. *rufa* but this is only a matter of degree and otherwise the labellum and also the column are identical. The flowers are more erect, generally paler in colour and as a general rule this variety may be considered the most slender and graceful of the group. It is a much more variable plant than ssp. *rufa*. Treatment of this plant as a subspecies was decided on as it looks distinct in the field, it replaces ssp. *rufa* entirely in the western extremities of its range and the status variety has been used loosely and frequently incorrectly in the past.

SYNOPSIS OF SPECIES, SUBSPECIES AND VARIETIES.

1. *P. woollsii* FitzG.
2. *P. biseta* Blackmore et Clemesha.
   Synonym *P. rufa* var. *despectans* Nicholls.
3. *P. boormanii* Rupp.
   Synonym *P. squamata* var. *valida* Nicholls.
4. *P. hamata* Blackmore et Clemesha.
5. *P. ceriflora* Blackmore et Clemesha.
6. *P. gibbosa* R. Br. ssp. *gibbosa*.
7. *P. gibbosa* ssp. *mitchellii* (Lindl.) Blackmore et Clemesha.
   Basionym *P. mitchellii* Lindl.
   Synonym *P. rufa* var. *mitchellii* (Lindl.) FitzG.
8. *P. rufa* R. Br. ssp. *rufa*.
   Synonyms *P. squamata* R. Br.
   P. pusilla var. *prominens* Rupp
9. *P. rufa* ssp. *aciculiformis* (Nicholls) Blackmore et Clemesha.
   Basionym *P. pusilla* var. *aciculiformis* Nicholls
   Synonym *P. pusilla* Rogers var. *pusilla*.

The photograph of the type specimen of *Pterostylis mitchellii* is reproduced by permission of the Director of the Royal Botanic Gardens Kew. Other type photographs are reproduced by permission of the British Museum (Natural History). Copyrights reserved.

J.A.P. Blackmore, 25 Holden Street, Ashfield. N.S.W. 2131.
S.C. Clemesha, 18 Wesson Road, West Pennant Hills, N.S.W. 2120.

EDITORS NOTE ON THIS ISSUE

No doubt some members will be surprised and perhaps disappointed that this issue comprises only one article. The review of the 'Rufous' *Pterostylis* is a major work of great botanical interest. To do justice to such an important work, it was decided to devote an entire issue to the review, rather than break a complicated subject into several small parts for serialisation. Readers who do not agree with this action may be pacified by the knowledge that I intend producing the next issue immediately and thus provide 6 issues for the financial year.

Having I hope, pacified some of our more epiphyte minded members I shall send the issue to press. Having spent some 50 hours on it, I hope you enjoy it.

THE ORCHADIAN

AUGUST, 1968. PRICE: 30 cents PAGE 1
VOL. 3 NO. 1

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: J.H. Scott, R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box 106C. Clarence Street, SYDNEY, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical

NATIONAL HERBARIU
LIBRARY
ROYAL BOTANIC GARDI
STH. YARRA, S.E.1, VI
21 OCT 1968

CORRECTIONS TO "A Review Of The So-Called 'Rufous Group' of The Genus Pterostylis", Vol. 2. No. 12.

Two typographical errors occurred in this paper and readers should make the following alterations to their copies:

Page 148, between lines 8 & 9, add the following:
"to a synonym of P. biseta and P. squamata var. valida Nicholls will be reduced"
Page 166, between lines 43 & 44, add the following:
"P. rufa var. squamata (R. Br.) FitzG."

MEMBERSHIP RENEWAL

Members are reminded that annual subscriptions to The Australasian Native Orchid Society fall due on the 1st July each year. Post your POSTAL ORDER or CHEQUE, ONLY, NOT CASH, to The Society, at P.O. Box, C 106 Clarence Street, Sydney, N.S.W. 2000. Ordinary membership is $2.50 per annum.

BACK ISSUES - THE ORCHADIAN

Individual copies of The Orchadian, Vol. 1. No. 1 - 12, are available at 40 cents each. Index to Vol. 1, is available at 40 cents each. Index to Vol. 2, will soon be available with Vol. 1. index as a consolidated index, price to be advised.
Bound copies of Vol. 1 are available at $6.60 each, including index. Vol. 2, is now available at $7.50 each, including consolidated index. Your copies of Vol. 2 can be bound for you by the Society at a cost of $3.50 each. However they will be bound in the order and condition they are received in. In the past members of Council have gone to considerable trouble to substitute dirty or damaged copies with new clean copies. However, we do not have members available to render this service so make sure your copies are in the right order before posting. Send by registered post to the Society and your bound volume will be returned by certified mail. Ensure that you include your cheque for payment together with your name and address clearly marked.

CORRESPONDENCE TO YOUR SOCIETY

Your Council is constantly amazed by the members of our Society who expect to receive answers to every letter by return mail. Your Council normally meets once each month to discuss Society business and attends each mailing of the Orchadian when they handle the enveloping etc. Your hard working Hon. Secretary, Harold Jay receives up to 60 letters each fortnight and many of these require discussion at the next Council meeting. Remember your Council are all honorary officers and spend most of their spare time in your service so please do not become agitated when an instant reply is not forthcoming. Council meets on the third Tuesday of each month and you could expect answers to your correspondence very soon after each of these meetings. Harold of course answers immediately the majority of letters which do not require Council attention and I do feel that members may not be aware of the splendid job he does in your service.

A NEW PTEROSTYLIS SPECIES FROM THE HIGHLANDS OF N.S.W. AND THE A.C.T.

Pterostylis laxa Blackmore sp. nov.

J. A. P. Blackmore

Holotype: Upper Grose Valley, N.S.W., J.A.P. Blackmore, 10th March, 1962 (NSW 100276). Planta gracilis alta 15 - 45 cm. Folia radicalia a caule distincta 5 - 6 folia. Bracteae caulis circa 4 - 5 foliaceae. Flos unum erectus mensura inconstans sed media in genere. Galea 2 - 3 cm. longa, erecta altitudo dimidiatus curvata cum acumine filiforme, saepe flaccido. Sepala lateralia erecta connata per ¼ - ⅓ longitudinis, sino non gibboso, illinc laxe curvata in diversas partes, aliquantus carnosa. Flos albus cum lineatis viridibus et rufo suffusus; Labellum sublanceolatum 1 - 1.3 cm. longum, curvatum ad apicem subacutum, appendice curvata penicillata; columna haud longior quam labella, loba superiores acumines acuta, loba inferiores oblonga-obtusa, stigma non magna oblonga-ovata aut elliptica.

A slender glabrous herbaceous plant from 15 - 45 cm. high. Radical rosette, distinct from flowering stem, 5 - 6 leaves, ovate to very broadly hastate, and shortly petiolate, often present at flowering time. Stem bracts about 4 - 5 sessile, leaflike, broadly to narrowly lanceolate, sometimes ending in a filiform point. Floral bract similar to stem leaves.

Flower solitary, very rarely 2, erect, size variable, but of medium size compared with others in the genus. Galea 2.0 - 3.0 cm. long, erect for approximately half its height then curving in a more or less sickle-shaped manner ending in a long filiform tip, usually, but not always drooping. Petals much shorter with acute tips. Lower sepals erect, united for ¼ - ⅓ of their length, sinus non-gibbous; free portions usually 3 cm. or more long, curving in various directions in a loose manner, most frequently backwards and somewhat fleshy in texture.

Flower white with green or brown bands and usually strongly suffused with rufous tints, at least distally.

Labellum on a mobile claw bluntly lanceolate 1 - 1.3 cm. long with central longitudinal ridge on top and a shallow channel on the lower side, curving forward after the distal half, protruding past the sinus and ending in a sub-acute tip where the central ridge thickens, brown to reddish brown with stronger colour towards the tip, relatively large curved penicillate appendage. Column about as long as the labellum, basal portion curved, upper portion erect; upper part of wing lobes with acute points, lower part oblong abtuse, sparsely ciliate, stigma not large, in centre of column, variable in shape, generally oblong-ovate or elliptical.

Flowering Period: March - May.

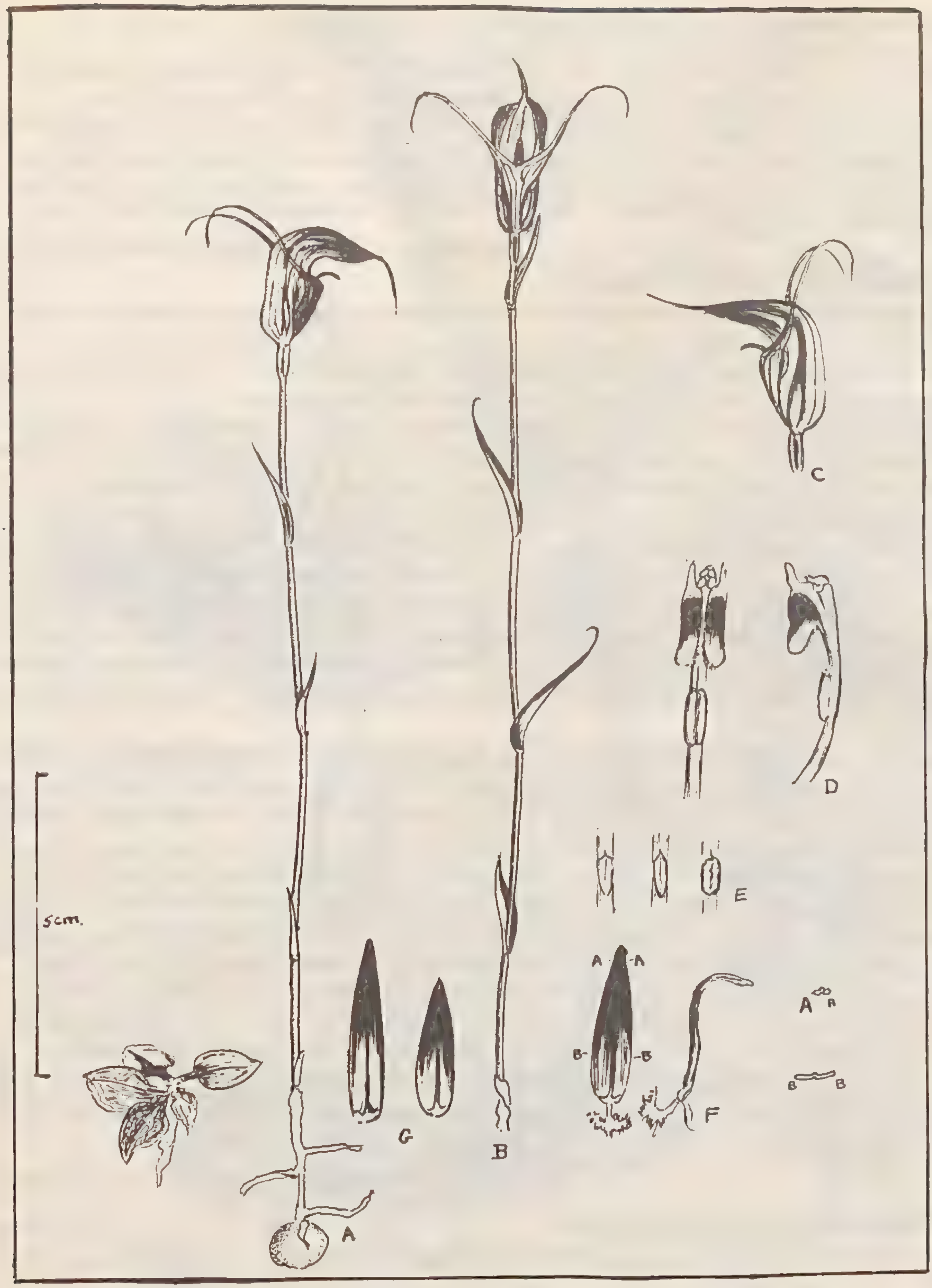
Distribution: In N.S.W. and A.C.T. where it is apparently confined to the tablelands and higher western slopes from at least Quirindi in the north to the Tidbinbilla Range in the south, may extend to southern Queensland (see later note). It is locally common in certain areas of the upper Grose Valley in the Blue Mountains, N.S.W. and the holotype has been selected from this area.

This orchid was discovered by the writer in 1955 in the Grose Valley in a fortuitous days collecting, as the first N.S.W. record of P. fischii was made a few minutes earlier and only 100 yards distant. About the same time Mr. K. McAlpine of the National Museum Sydney, collected both of these plants in an adjacent valley. P. fischii was identified by the Rev. H. M. R. Rupp but the plant here described as P. laxa was found after his death, in a box at the National Herbarium Sydney, marked "undescribed species". In a letter to Geo. Althofer which H. M. R. Rupp wrote shortly before his death he said (7.6.1955) "2 new species have been found in the Blue Mountains (i.e. one new for N.S.W. viz. P. fischii Nicholls). The new one is allied to P. decurva but the labellum is radically different".

The writer has seen probably, at least, a thousand flowers since 1955 and other collectors have extended the known range of this orchid to at least five other localities and are agreed on its specific rank. Although P. laxa has affinities with P. decurva and P. reflexa, the labellum shape and the general shape of the galea coupled with its unusual lateral sepals with fleshy texture, non gibbous sinus, drooping backwards or forwards in a loose manner (leading to the epithet "laxa" meaning "loose or flaccid") make it an easy plant to identify in the field. Both in the A.C.T. and east of Bathurst N.S.W. it grows together with P. decurva.

This is not therefore the description of a species from an isolated collection. Indeed this description would have been published some years ago but for doubts expressed by such weighty authorities as J.H. Willis and A.W. Dockrill. However the plant has been referred to in at least two publications - The Australian Naturalist, October 1962, Vol. XII. Pt. 3 p.19, in a paper "Orchids of the Blue Mountains N.S.W." by Isobel Bowden and in The Australian Orchid Review, Vol. 30. No. 3. September 1965, pp. 126 & 130 (figured p. 127) in an article on "The Genus Pterostylis - Species of Central Western N.S.W." by W. Brinsley, where he kindly referred to it as P. laxa. J.A.P. Blackmore n.s.. M. Gray of the C.S.I.R.O. Canberra whilst compiling a list of the Orchidaceae of the A.C.T. in 1963 and posessing excellent specimens, collected at Mt. Majura and two other localities in the A.C.T., in grassy areas in sclerophyll forest, had independently formed the opinion that P. laxa was a new and undescribed species, but learning of

continued page 4.



PTEROSTYLIS LAXA Blackmore Sp. nov. – KEY TO PLATE

A.B. Typical plants.
C. Flower showing horizontal or upturned dorsal tip of some specimens.
D. Typical column approx. .... 3X.
E. Various stigmas.
F. Typical labellum approx. .... 3X.
G. Labella 3X showing extremes of length and width.

A New Pterostylis Species From The Highlands Of N.S.W. and the A.C.T. cont'd.

the writers intention to publish it kindly refrained from doing so himself.
In the Queensland Naturalist, June 1947, Vol. 13. No. 3. p. 56, in a short article "A Missing Pterostylis" H.M.R. Rupp figured a Pterostylis sent to him by Mrs. Hilda Curtis from Tambourine Mountain in 1926. His short description and figure were probably made in 1947 from the pressed material and small specimens of P. laxa. Also the name bestowed on it by Mrs. Curtis of "Antelope Orchid" would be very appropriate to the backward curving sepal points of P. laxa. It is probable that a search in the Mt. Tambourine area would reveal fresh specimens, as the plant was stated to be well-known to the collector, and would establish whether or not Mrs. Curtis' plants are P. laxa.

J.A.P. Blackmore, 31 Mahers Road, Beecroft, N.S.W.

GALEOLA FOLIATA (F. Muell.) F. Muell.

It is always an exhilarating experience for an orchid student to come across a hitherto unseen species growing in the wild.
Such an experience is all the more pleasant when the orchid concerned bears flowers of considerable horticultural attraction. Early in February 1968, the author located a fine flowering plant of Galeola foliata (F. Muell.) F. Muell., by rather fortunate chance.
While driving along a forest road which became too steep and rough to negotiate by vehicle, the author left the car to examine a possible turning area, only to discover a medium sized specimen of this fine orchid scrambling over the base of a tree and rocks overhanging a pool in a small creek. Apparently the original plant had been covered by debris when the road had been constructed, as several new shoots were noticed pushing their way through the soil and leaf debris near the portion which was in flower. The flowering plant bore two or three panicles of bright, golden yellow, widely expanding, flowers about 2¼" (57 mm.) across, the labellum being very fine, widely dilated in the distal portion, pale yellow in colour and profusely adorned with deep pink calli and the margins of the labellum crisped and much undulated in attractive fashion. The lower flowers only, on each branch of the panicle were expanded and were much larger than those depicted by FitzGerald in his Australian Orchids Vol. 2. Pt. 2., though flowers which expanded later in water were smaller and some were barely 1¾" (44 mm.) in diameter. Nearly 600 flowers and buds were counted on the one panicle. It is unfortunate that this fine orchid resists attempts to cultivate it; as in N.S.W. at least, the fast disappearing brushes of the north coast will lead to its extinction.
One other species of the genus is found in N.S.W., G. cassythoides (A. Cunn.) Reichb.f. which is found, often in open forest, south to the Illawarra District of N.S.W., usually growing on smooth barked Eucalyptus spp. and Angophora costata. It is not uncommon about the Sydney area. Flowers of this species are much smaller and of a less attractive colour than those of G. foliata.
Galeola foliata (F. Muell.) F. Muell., Fragm. VIII (1873), 31.
A terrestrial leafless saprophyte climbing on tree trunks by means of sucker-like roots, stems often much branched, yellow-green in colour and attaining a height of 40 feet (12.2 m.) or more. Bracts large with acuminate points, to 6 cm. long; Flowers in much branched panicles, very numerous, widely expanding and probably numbering several thousands on large plants. Panicles attain a size of 180 cm. x 90 cm. in width. Sepals and petals to about 30 mm. long, strap shaped, golden yellow. Labellum a little shorter, obovate, narrow at the base, pale yellow or creamy white with pink markings, the distal half widely expanded, its edges much crisped and undulate and heavily adorned with irregular pink calli. Lamina with two glandular ridges from the base where united, then narrowly divided to about half way, each division with corrugated wings, then abruptly narrowing again and almost merging to the apex, divided by a furrow. Column about half as long, somewhat incurved. Anther with broadly bifid dorsal appendage, stigma small, high on column. All flowers examined by the author had a small pink tipped glandular structure at the base of the column. This is not shown by FitzGerald nor mentioned by Rupp in Orchids of N.S.W.
Flowering Period: November - February.
Distribution: N.S.W. north of Kempsey, Queensland.

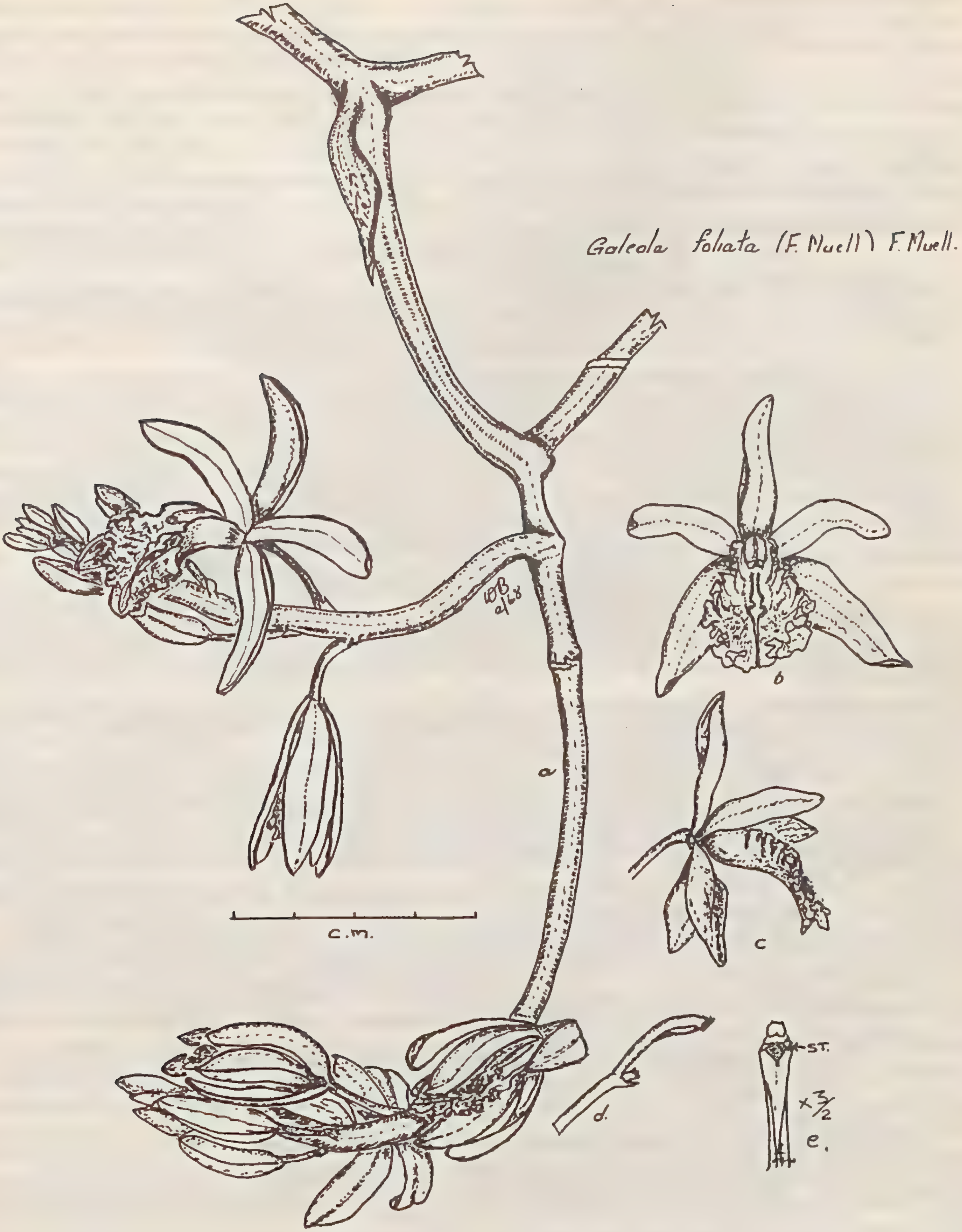
W. Brinsley, P.O. Box 154, Ballina. N.S.W. 2478.

NIGHT FLOWERING THELYMITRA IXIOIDES.

R.C. Nash

Location, a hostel room in Canberra, heated by a water heated radiator. Illumination, an 100 watt incandescent lamp, hanging from the ceiling. Flowers picked during the afternoon. Time 8.30 p.m.

continued page 8.


Galeola foliata (F. Muell) F. Muell.
10B a/68
a
b
c.m.
c
d.
ST.
x 3/2
e.

GALEOLA FOLIATA (F. Muell.) F. Muell. – KEY TO PLATE

A.B.C.	Portion of a panicle and average sized flower	to scale.
D.	Column from side	to scale.
E.	Column from front	1½.

ORCHID SEED CULTURE FOR THE AMATEUR.

Bruce C. Paterson.

My objective in experimenting with asymbiotic native orchid seed cultivation has been spurred by a desire to maintain and distribute as widely as possible, progeny of good clones of our native orchids, as well as to attempt hybridisation.

Therefore I wanted a relatively simple method of asymbiotic culture, with little or no costly chemicals or equipment. I read the English Orchid Review, American Orchid Society Bulletin, Encyclopaedia Britannica, Australasian Post and any other material which I thought might be helpful.

The first formula which I came up with was the "Chung" medium which seemed to suit my requirements, few chemicals and easy measuring, but I had very little success with this formula.

Chung Medium Formula:
1¾ pints of tap water.
1½ teaspoons of Atlas fish emulsion.
5½ teaspoons of sugar.
1 teaspoon of Peptone.
9 teaspoons of Agar Agar.

Preparation: Bring the water to the boil, then keep simmering, add other ingredients, one at a time, and stir well, making sure everything is well dissolved. Boil lightly for 5 minutes. Test pH factor and adjust to about 5.0 (4.8 - 5.2). Add fresh lemon juice (a few drops at a time) if above 5.2; add Ammonium Hydroxide (a few drops at a time), if below 4.8.

Testing with the Indicator papers after each addition has mixed well, until optimum 5.0 is reached.

Further research showed that the addition of banana fruit pulp to any mixture was very beneficial to the growth of orchid seedlings, so I then added the mashed fruit pulp of 1 banana to the mixture.

I mash the fruit to pulp with a fork and add the sugar while mashing as it helps to liquify the banana, but a better method would probably be to use some household fruit pulveriser.

This addition proved very successful and produced bottles with seedlings growing very well.

Additional research showed that honey, as a sugar replacement was a further advantage as it contains vitamins B2 (Riboflavin), C, and Niacin (Nicotinic acid) all proven to be beneficial to seedling growth, as well as other minerals and trace elements necessary for good growth.

My next formula was:
1¾ pints of tap water.
1½ teaspoons of Atlas fish emulsion.
9 teaspoons of Agar Agar.
8 teaspoons of honey.
1 teaspoon of Peptone.
2 just ripe mashed bananas.

At this time I also read of the benefits gained from using ordinary household sugar in preference to pure sucrose, because of the impurities contained therein, so I am now experimenting with the above formula and one replacing the 8 teaspoons of honey with 4 teaspoons of honey and 3 of ordinary sugar.

Formula components: Water:-necessary to give volume and moisture to nurture the seeds and carry plant foods. Fish emulsion: - (an orchid fertiliser,) but controlled experiments carried out by the Botanical Gardens of South Australia seem to belie this. Carbohydrates (sugars): - sucrose, ordinary cane sugar with its impurities, supply the energy source for seed germination and seedling growth. Honey: - is about 40% frutose, (a fruit sugar) and 40% glucose and 2% sucrose with other vitamins, minerals and trace elements, all very beneficial for seed germination and seedling growth. As well, honey is a bactericide, killing most germs and bacteria in hours. The ancients used honey for healing cuts, wounds and boils whilst the ancient Egyptians used honey in their mummifying processes.

Peptone: - (Soluble protein compounds and enzymes,) accelerates metabolism in plants and seeds and promotes root growth. Agar Agar: - medium base and is a type of gelatine made from seaweeds. Absorbs about 20 times its own weight of water. Forms a type of jelly and holds nutrients in suspension and allows penetration of roots. Banana: - contains some hundreds of chemical compounds and has been proven to definitely promote the growth of orchid seedlings. The American Orchid Society is promoting experiments to attempt to find out just what substance or substances do cause the growth, but they are not optimistic about obtaining a definite result.

Test papers: (pH indicator papers.) Probably the best test papers available are "Syphan Indicator - Papers", range 3.9 - 6.9. These are a two colour paper and make for an easier indication when checked against the colour chart supplied. If these are not available then use "Whatman - BDH", range 4.0 - 6.0. These are a single colour paper and once again should be checked with colour chart.

When using papers, tear off about 2" and dip ¾" into fluid and be sure to thoroughly saturate it, then allow about 30 seconds for colour to stabilise and compare with colour chart. Then if necessary, add correction fluid and use other end to make next test of mixture. The medium should then be ready to bottle and at least ½" depth of mixture should be used, on which to sow seeds.

Preparation of bottles: The bottle of course should be ready before medium is prepared and should be readied in the following manner.

continued page 7.

Orchid Seed Culture For The Amateur. Cont'd.

I use "Johnny Walker" whisky bottles prepared by washing in "Sunlight" soap or "Lux" flakes, (not detergents as these leave a contaminating film on the bottles) then rinsed in a dilute solution of caustic soda (or hypchloric acid) and thoroughly rinsed.

Sufficient mixture is added to the bottles (I get 7 bottles from the one mix) and then corked with a suitable rubber stopper, with one ¼" hole packed with cotton wool and then covered with al-foil to prevent dust and spores entering. The bottles are then ready for sterilising.

Sterilising medium: Pressure cook bottles for 20 minutes at 15 lbs. per square inch in an autoclave, or household pressure cooker for 30 minutes. If the bottles will not fit, or no pressure cooker is available, then do as I do, bring an oven to heat of 375° F and put bottles in a roasting dish and put about ¾" of water into the bottom of the dish and cover completely with al-foil. Then when oven has reached 375°F put in dishes with bottles and bake for 30 minutes. Take out and allow to cool and the agar to set. Bottles are then ready for seed implantation.

Sterilising seed: I use "Kindness" bleach, a household laundry bleach, containing sodium hypochlorite, which is less damaging to plant fibres than calcium hypochlorite.

Dilute the bleach one part to four parts of sterile water. My sterile water is prepared in glass bottles which I have covered with al-foil and then pressure cooked for 30 minutes and allowed to cool.

The containers I use for sterilising seed are old junket tablet tubes with caps. Place about ¼" - ⅜ of fluid in tubes and then add a tiny amount of seed. Very little seed is required as too much will choke the bottles and not give good growth. Shake well several times during a 20 minute period. Draw off as much of the fluid as possible with an eye dropper fill the bottle with sterile water and shake up to disperse the seed throughout, suck up half the contents of the tube into an eye dropper, then sow into 1 bottle, put the other half into a second bottle.

Sowing: I use a cake cooling tray mounted over two strip heaters to give an upward draught of air, so as to prevent any contaminant falling into the bottles while sowing. To sow seeds, first remove the al-foil cover, then the rubber stopper which is placed in a dish of the bleach. The eye dropper of seed suspended in the water is squirted into the bottle and the cork replaced and covered with a polythene film which has also been in the bleach bath. Tie down with thin copper wire and attach a tag giving bottle number and any other details needed. I keep a book recording the type of seed, date of sowing, medium used etc. and a record of growth.

Sowing room: I use the bathroom. Close the window and carry in all necessary equipment, seeds, bottles etc. and cover with polythene film. Wear clean overalls, a beret and surgical mask to prevent breathing into bottles when cork is removed.

Then with a vaporiser fly spray (the pump up pressure type) containing a dilute solution of bleach, about 1 in 40, spray the bathroom thoroughly near and towards the ceiling so that all dust, mould and fungus spores and bacteria are picked up by the mist and carried to the floor as the vapour settles. Fill the bathroom with as thick a mist as possible and allow to settle. The room is then ready. Once the strip heaters are hot enough sowing can begin.

The bottles are washed under a running tap to remove any dust etc. and then remove al-foil cover on top of the cork tray and wipe around cork and bottle with the bleach. Remove cork, putting it into the dish of bleach and squirt in the eye dropper full of seed in suspension and if necessary some more water as the seed seems to like a copious amount of water in the bottle.

Cork and cover etc. as previously described.

The bottles are then placed on top of the kitchen cupboards for about a fortnight, then placed on my glassed in back verandah to await germination and development. When plants are big enough, remove from the bottle and plant out in flats and grow on.

Then buy 2 boxes of chocolates for the "missus"!

Bruce C. Paterson, 30 Hyacinth Street, Asquith. N.S.W. 2078.

EXTRACTS FROM LECTURE GIVEN TO SYDNEY GROUP BY MR. A.M. BLOMBERY.

Reported by H. Jay.

Mr. Blombery, who is very well known to lovers of Australian plants, agreed to give a lecture to the Sydney Group and his topic for the night was: RAISING NATIVE ORCHIDS FROM SEEDS.

First the fertilisation of the flower was described and the method of transferring the pollinia to the stigmatic plate and the subsequent construction of the ovary or seed pod. As this is generally well known and dealt with in many publications it is not intended to report this here. Two methods of seed raising were discussed - the Asymbiotic and the Symbiotic method. The former, it was stated, was the most successful and the Knudson formulae was briefly outlined and recommended to those who wanted to raise large numbers of plants. However, as many of us do not have the facilities available, he stated he would like to confine his lecture to the Symbiotic method so that his listeners could have the enjoyment of raising a few plants from seed procured from their own collection. Mr. Blombery felt that amateur growers should be encouraged to undertake this work.

continued page 8.

Extracts From Lecture Given To Sydney Group By Mr. A. M. Blombery. Cont'd.

The method described is by no means new and in fact, was the original method used for obtaining new plants for many years. It can only be used for epiphytes; terrestrrials are more difficult and it seems that the only satisfactory method for these is to sprinkle the seed around the parent plant. Similarly with epiphytes, if the plant is kept moist, seed will germinate around the parent plant. One method of keeping the pot moist was to place same in a larger pot and fill the space with say, sphagnum moss.

Orchid seeds in nature are not provided with stored food like a bean, where the temporary leaves known as cotyledons which are the first to show forth provide nutrient whilst roots are forming and then leaves appear. Orchids rely on mycorrhiza fungi for their existence which they obtain from the parent plant, and the seed is sometimes provided this in nature when it is wind blown and is finally lodged on a suitable host it will germinate and grow into a full size plant. In a very few cases this fungi can be provided by some other living plants not associated with orchids.

In the method being described, root tips are used to provide the mycorrhiza for the seeds we hope to raise.

Again, to be successful the pH of the medium used must be slightly on the acid side, a figure of 5 or 6 being quoted. To control this peat moss is added to the medium.

Moisture is all important because once the seed germinate they must not be allowed to dry off. Nature provides natural mosses for this very prupose. In our case sphagnum moss is used in the medium mainly to take water by capillary action from the saucer to the seed germinating on the towelling. Tree fern or todea fibre really provides the drainage which is so all important. A cross section sketch of the completed planting is shown for guidance of those not at the meeting.

Referring to the sketch, the method is as follows. Take a new terra cotta pot and sterilise it by boiling. Remember everything must be as sterile as possible. Make up the medium of sphagnum moss, peat moss and tree fern fibre (or todea fibre) into a fairly tight ball, wrap towelling over top of ball and force into pot. Pour boiling water over all and allow to stand till cool.

It was mentioned that sphagnum moss in itself was very sterile, but Mr. Blombery pointed out that foreign bodies or larvae of same could still be present and it was best to destroy them just in case. Sterilised sphagnum moss should be pushed between the towelling and edge of pot to assist in holding moisture.

Sprinkle the orchid seed on surface of towelling then add a few live tips of roots preferably from the parent plant. A question was asked "would it be satisfactory to use root tips from another plant if it was felt to be undesirable to take these from a small and rare plant?" Mr. Blombery replied that provided the root tips were taken from a similar genus they should be satisfactory. The questioner used Dendrobium dicuphum as an example and the answer given "use D. kingianum or some other Dendrobium root tips".

Next a glass cover is placed over the pot and the pot stood in a terra-cotta saucer and filled with water previously boiled. The water is maintained at about 1" height, the boiling of the water being used to keep down the formation of algae. The pot and saucer are then placed in a shady position out of draughts, say in a glass house or some protective frame.

Mr. Blombery said that if nothing appears after about 4 - 6 weeks the seed, as it sometimes is, could be infertile. On the other hand if the seed is fertile the seed will have a spider-like web covering it, coming from the fungi around the seed which provides food for the protocorm to live on. After a few months a tiny leaf and fine roots hairs will appear and at this stage some form of fertiliser such as ¼ strength Aquasol should be introduced overhead once a month.

When these plants are taken out and put into other containers attention must be paid to drainage. We are warned that when the glass is removed to harden off the plants prior to planting out, protection from snails and slugs should be closely watched, as 12 months hard work could be ruined in one night.

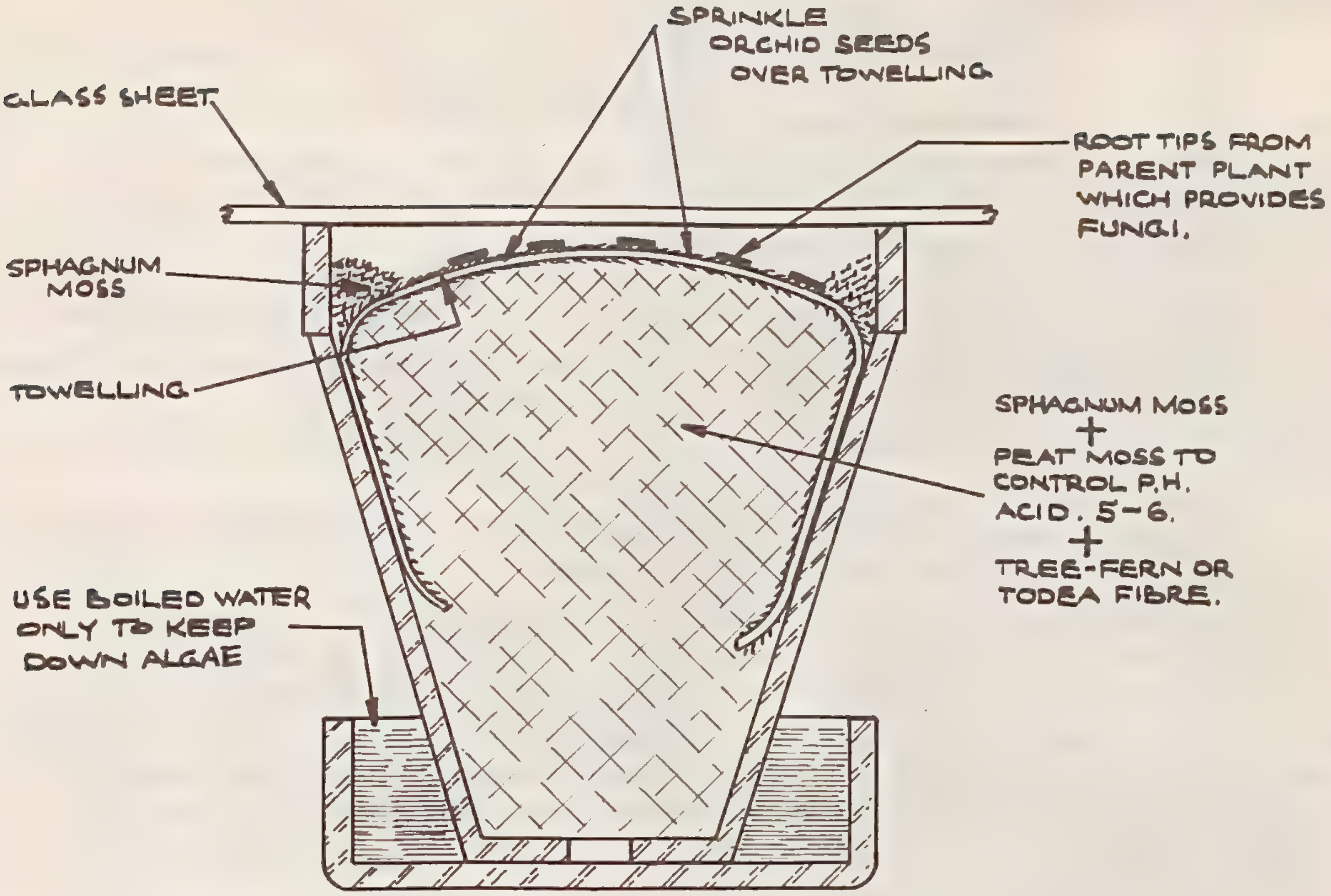
Mr. Blombery brought along a nice specimen of Dendrobium kingianum x D. speciosum growing in charcoal, using a wire mesh basket and tree fern slabs to hold the charcoal. This had been produced by the method just described and flowered in seven years.

H. A. Jay, 2 Leicester Street, Chester Hill. N. S. W. 2162.

Night Flowering Thelymitra ixioides. Cont'd from p. 4.

For some reason I happened to glance at the raceme of Thelymitra ixioides, it had four flowers, the lower one was spent, the second looked as though it were expanding and the other two were tightly closed. Five minutes later, I again glanced at this spike, the second flower was expanding. Twenty minutes later the sepals and petals had opened to about half full expansion. Maximum expansion was reached at about 9.10 p.m. with the flower fully open. By 9.45 p.m. the flower had closed completely, the room temperature had fallen because the heater had been turned off.

continued page 9.


SPRINKLE ORCHID SEEDS OVER TOWELLING
GLASS SHEET
ROOT TIPS FROM PARENT PLANT WHICH PROVIDES FUNGI.
SPHAGNUM MOSS
TOWELLING
SPHAGNUM MOSS + PEAT MOSS TO CONTROL P.H. ACID. 5-6. + TREE-FERN OR TODEA FIBRE.
USE BOILED WATER ONLY TO KEEP DOWN ALGAE

Night Flowering Thelymitra ixioides. Cont'd. from p. 8.

During the following day the second and fourth flowers half opened, more heat did not cause further expansion of the floral segments. The third flower proved to be a spent one. No flowers expanded this night.

On the third day, a Monday, both the second and fourth flowers were fully open by 8.20 a.m. when I left for work. On arriving back at 5.05 p.m. both were about half open, at 6.00 p.m. both were tightly closed. At 9.30 p.m. the flowers started to open but soon closed again as the room was cooling down. The weather had been overcast all day and the room had been heated.

The second flower proved to be spent on the fourth day and only the fourth flower opened during the day. This flower did not open during the evening as the room was kept in darkness.

Fifth day, the fourth flower was open fully by 8.20 a.m. and closed again at 5.10 p.m. It started to open again at 7.00 p.m. and it closed again within the hour.

All flowers were spent on the sixth day.

The above proved to be an interesting study and the flower involved was one of the large coastal type collected from near Ulladulla N.S.W. Did the heat of the room or the illumination from the 100 watt lamp cause this night flowering? I am inclined to think that it was the heat. Since this time I have not been able to repeat this experiment, but hope to do so one day. The above observation was made on the 17th through to the 22nd of September 1966.

R.C. Nash, 77 Coromandel Parade, Blackwood, South Australia. 5051.

NORTH QUEENSLAND ORCHID SAFARI. Cont'd. from Vol. 2. No. 11. John Young

(common northern "pencil" orchid) on trees quite close to the road. On the native's advice we stopped at the Annan River, and here, on the open tea-tree (Melaleuca spp.) flats we found large numbers of Dendrobium rigidum, D. johannis and D. canaliculatum. I once heard an interesting statement concerning the latter species. A collector told me that the best plants always seem to be on the dead trees. Now this is contradictory to the habit of most orchids which seem to dwindle

continued page 10.

A NEW ADDITION TO THE AUSTRALIAN MEMBERS OF THE GENUS HABENARIA. I. D. Walters

HABENARIA SUMATRANA (Schltr.) Schltr., Engl. Jahrb. 45, Beibl. 104: 3. 1911.
Platanthera sumatrana Schltr., Bull. Herb. Boiss. Ser. 2, 6:296. 1906.
Peristylus candidus J.J.S., Fl. Buit. 6: 36, f. 18. 1905. (not Habenaria candida Lindl.).
Habenaria lacertifera quoad Rodl., Flora 4: 230 p. p.

A terrestrial herb, with three oblong, pointed, basal leaves up to 8 cm. long and 2 to 2.5 cm. wide, but variable with regard to growing conditions. Two tubers, one flowering and another developing seasonally, ovoid, about 2 x 1 cm. but also variable with regard to size of plant and conditions. Roots numerous, thick, 1.5 - 2 mm. in diameter.

Stem up to 30 cm. high about 2 mm. diameter, with 5 bracts, the lower two leaf like, broad, pointed, sheathing, the largest 2.5 - 3.5 cm. long and 8 - 12 mm. wide. Bracts progressively smaller up the stem, sheathing. Flower bracts acuminate, sheathing the pedicel and ovary, 10 - 12 mm. long. Pedicel barely 1 mm. long. Ovaries straight, twisted longitudinally, 12 - 13 mm. long, 2 - 3 mm. diameter, tapered at each end, more so at apex.

Flowers white, 8 - 10, about 7 mm. across sepals and 4 mm. high (top of dorsal sepal to labellum). Natural spread of flowers variable. Petals, dorsal sepal and labellum all projected forward to form a tube shaped flower, but with all segments free.

Petals and dorsal horizontal, forming a galea. Dorsal sepal 2 mm. across at broadest point and 5 - 6 mm. long, blunt pointed, the tip curled up for about 1 mm. Petals 5 - 6 mm. long, 1.5 - 2 mm. wide, the apices bluntly pointed and slightly reflexed.

Lateral sepals about 5 mm. long, 1.5 - 2 mm. wide, lanceolate, the apices reflexed slightly for about 1 - 1.5 mm. The lateral sepals only slightly reflexed away from the rest of the flower.

Labellum three lobed, the lateral lobes curved up, pointed, about 2 mm. long and 0.8 - 1 mm. long and about 1 mm. wide at base, triangular. Overall length of labellum about 5 mm. and widest part about 2 mm. across. Small hump, about 0.2 mm. high, 0.4 - 0.5 mm. long, situated approximately 2 mm. from tip of midlobe, in the middle of the labellum, the hump rising from each edge of the labellum to the highest point in the middle. Labellum slightly undulated at hump.

Labellum spurred, the spur short, ovoid, pointed, about 1 mm. diameter and 1.5 mm. long.

Column erect, about 0.8 - 1 mm. wide, 0.8 - 1 mm. high, and 0.6 - 0.8 mm. long. Auricles two, one on each side of column, joined to labellum, small, very close to column, 0.1 - 0.2 mm. high, round, 0.1 - 0.2 mm. wide at base.

Stigmatic arms apart, joined to the labellum, slightly raised, rectangular surfaces, about 0.1 - 0.2 mm. long and under 0.1 mm. wide.

Rostellum erect, arising between the anther cells, tooth shaped, channelled on the under side, about 0.1 mm. long. Anther cells erect, almost touching (separated by the rostellum), and not produced into channels or tubes. Pollinia two, in soft granular masses, each with a short, filiform caudicle, the caudicles free, at the base of the anther cells and to the back of the column. Overall length of pollinia and caudicle under 1 mm. Retinaculum (disc) thin, oval, about 0.2 mm. long by 0.1 mm. wide and housed in tissue behind the stigma.

Distribution: Rockingham Bay, lowlands. Originally recorded from Sumatra to the Moluccas and Malaysia.

Flowering Period: April.

Note on The Genus Habenaria And On The Species Habenaria sumatrana (Schltr.) Schltr.

The genus is a component of the subtribe Habenarieae and is found in most parts of the world. The genus is extremely variable and has been split into three genera by some authors.

Platanthera (flat stigmatic surface, usually continuous but sometimes slightly divided, beneath the rostellum) Peristylus, (2 stigmatic surfaces, separate, club shaped, attached to labellum and auricles), Habenaria proper (2 stigmatic surfaces, separate, club shaped, not attached to labellum, and often long and prominent).

Some authors however, regard Peristylus and Platanthera as merely divisions of the genus Habenaria. R.E. Holttum in Flora of Malaya, describes them as such and describes Habenaria sumatrana as belonging to the division Peristylus of the genus Habenaria.

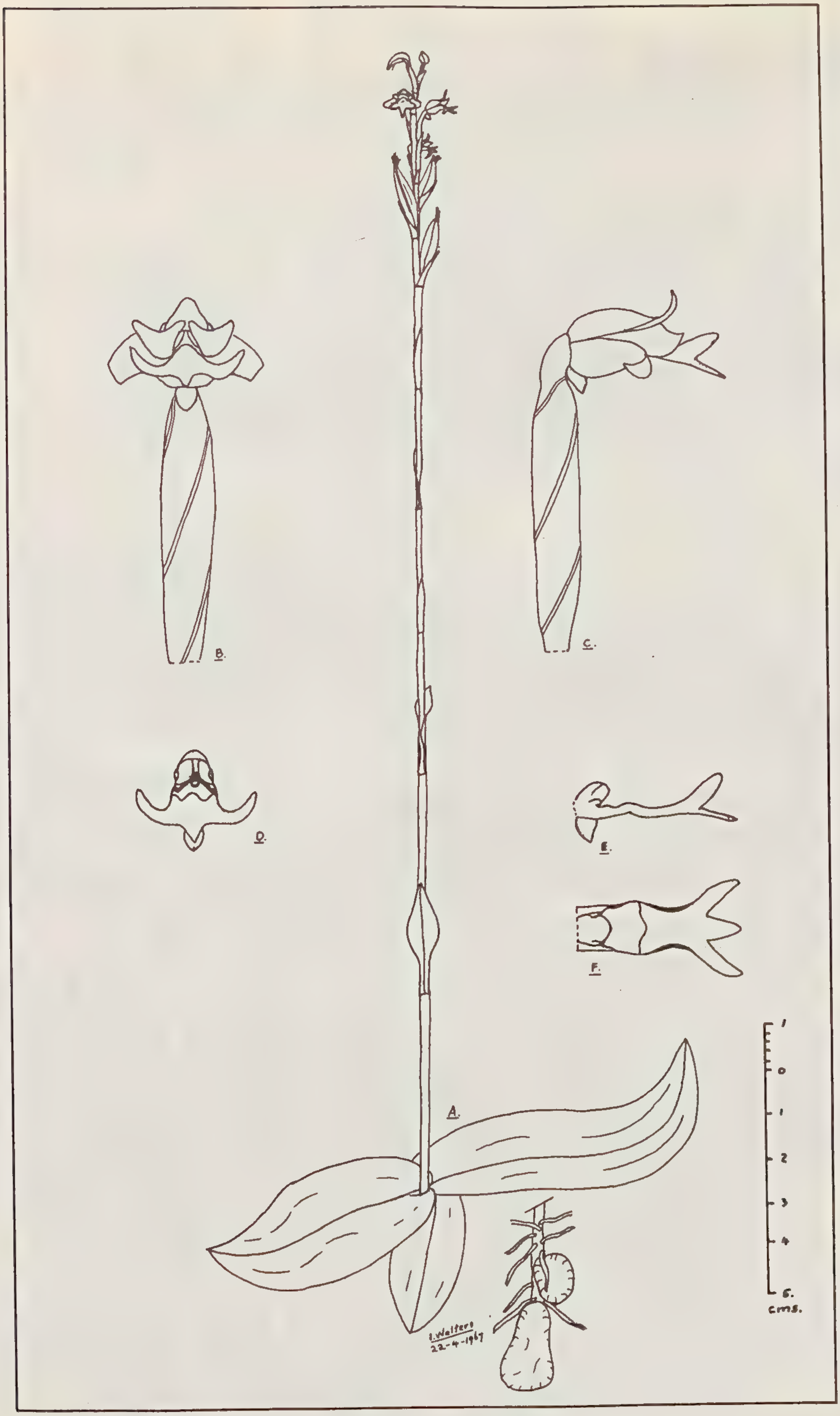
Habenaria sumatrana is therefore left as published in Flora of Malaya, with the note that it has the Peristylus structure of the 2 separate stigmatic surfaces joined to the labellum and auricles.

I. D. Walters, De Courcey Street, Mundingburra, Townsville. QLD. 4812.

North Queensland Orchid Safari Cont'd.

off in a matter of a few years after the host dies, but here in this area I saw this phenomenon for myself. Certainly the best plants were on the dead trees or dead limbs, and the same applies for Dendrobium johannis also. This means that if warm, humid, sunny conditions can be given - with a drier rest season - these species should do very well on logs of tea-tree (paper bark),

continued page 12.



HABENARIA SUMATRANA (Schltr.) Schltr. – KEY TO PLATE

A. Plant to indicated scale.
B. Flower from front to scale...................... X5.
C. Flower from side to scale...................... X5.
D. Column, labellum to scale.................... X5.
E. Column, labellum from side to scale.... X5.
F. Column, labellum from above to scale. X5.

North Queensland Orchid Safari Cont'd.

which is what they mostly choose in nature. There did not seem to be any other orchid species in the area, and certainly no Dendrobium bigibbum var. superbum (Cooktown orchid) which was the main object of our search. There were however, huge festoons of a Dischidia species with round silvery leaves hanging from the trees, and for no real reason I had a bit of a tug at one of these. As luck would have it, I upset a tribe of fierce little black ants which fell upon me in force. Some went down my shirt of course, but the worst was that one that got in my eye under the lid and stung like blazes for a couple of minutes. So severe was the pain that I could not even open the eye so that Jack could help. This searching for orchids is not all fun. For the rest of the day I searched with only one eye and it ached for three days after. At this point we seemed to be close to the coast so we tried to reach it. Perhaps a beach as isolated as this would surely be, might be, covered with Dendrobium discolor which would be well worth having a look at. The going was easy and we were able to stride along fairly briskly, but even after we had covered a good three miles the supposedly nearby coast still did not seem to be any closer. At long last our hopes were brightened. We came upon a very dense mangrove forest and on the fringe of this was a huge plant of Dendrobium discolor. Jack was tiring however, so I left him to rest up a bit while I made a last desperate bid to reach the beach. However, the mangroves did not fringe the coast as I had hoped, but only a small creek, a tributary of the main river we had been following for so long. Here I was completely thwarted so just how close I got to that coast I'll never know. The mangrove is a different species from that seen in our southern estuaries. It has larger leaves and is more dense, so that in the late afternoon it was quite gloomy in this forest. The roots are very heavy and are arranged to about four or five feet up the trunks. They grow out almost horizontally before finally branching and dipping into the mud anything from ten to twenty feet away from the trunk. Travel was made easy. I simply walked along, or hopped from root to root. There was an incessant clakking sound in this strange little forest. I imagine it was caused by hundreds of crabs, though I could see none. In fact all I could see in every direction were these strange trees with their roots looking like groping tentacles in the gloom. I could not help but feel how sinister and foreboding they were in appearance, perhaps something like one might encounter in a nightmare. I searched in vain for Dendrobium toftii in the upper limbs of the mangroves. Also I kept an eye open for crocodiles, a precaution I could have dispensed with, for I learned later that the poor brutes have been shot almost to extinction, and that they now keep a more wary eye open for man than man does for them. I returned to Jack with the bad news and we headed back to the car to set up camp for the night. Perhaps I should have mentioned that all the Dendrobium canaliculatum in this area are of a rich brown colour where the normal form is yellow. A good form of this brown variant is equally as beautiful as the yellow one and would make a wonderful companion plant for it in a collection. It rained a little that night and next morning the sky was overcast. We had a bit of a lead that Cooktown orchids once grew at a little place off the main road called Helenvale, so we packed our gear and went to Helenvale. The road in makes a couple of sharp descents and the car skidded about on these considerably. Obviously we would have a lot more trouble getting back out, especially if it rained again. Helenvale consists of the quaintest little pub imaginable, and nothing else! We had a few beers and the most entertaining conversation with the publican. The walls are adorned with the skins of all sorts of fascinating things from pythons to 'possums, and by the time we left, the bar was laden with bottles of pickled oddities and various mineral samples etc. There were a few trees just outside the pub and to these the owner had attached quite a number of orchids. He had a good showing of Cooktown orchids all in flower, but they had not been found locally. All the others he had there though, could be found "just down the road a bit". It had started raining again however, and we decided we had better "high-tail" it out while we still could. We made it. Our next stop was to be at the Little Annan River. This is the same river as the Annan of course, but this crossing is much nearer the source. Here the water was fast flowing and clear, and it thundered down a huge deep ravine with sheer rock walls. We had heard that there might still be a few Cooktown orchids in this area and we were determined to give it a good going over, because by the look of the weather we would not be going further north to where they are still plentiful. We had a bit of a look around but did not go too far afield. The entire load in the car had somehow become a shocking mess and we spent the rest of the day on the uninteresting, but very necessary job of straightening up. It almost had Jack wishing he had brought his wife along! It rained all night but dauntlessly we rose early and set off into the bush. The rain was not heavy, but it was enough to be annoying. Really though it seems to be a case of mind over matter, for one could hardly say that it was uncomfortable, even when soaked to the skin. It certainly is not cold. Well, we searched hard and long, and when on the very point of giving up we stumbled onto a small patch of Dendrobium bigibbum var. superbum (Cooktown orchid). There would not have been more than about twenty plants and they were a scraggy lot to say the least, but I did not care.

continued Vol. 3. No. 2.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDEN
STH. YARRA, S.E.1, VIC.
MAR 1969

THE ORCHADIAN

DECEMBER, 1968 PRICE: 30 cents PAGE 13.
VOL. 3. NO. 2.

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: C.K. Ingram
R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, tor transmission by post as a periodical

W.H. Murdoch - LIFE MEMBER

At the 52nd meeting of your Council, held on the 17th December, 1968 it was carried unanimously that the Immediate Past President of The Society, be created a Life Member. Bill Murdoch, the man who first put paper in his typewriter and decided to write to Australian Native Orchid enthusiasts with the idea of forming a distinct, Australasian Native Orchid Society. Many of those fortunate enough to have been included in the first batch of letters are still members of The Society, and in fact, many of the founder members are still serving our Society on Council, or in Group Committees.

continued page 15.

PRESIDENTS REPORT

Once again we have come to the end of another year in the history of our Society and it is my pleasure to give you a resume of what has occurred during this period. My fellow Councillors have again given a lot of time and thought to the Society's affairs and one in particular has continued to travel for approximately four hours each way to attend Council meetings. I extend to Bill Murdoch my personal thanks for this magnificent effort and I am sure that every member feels the same as I do.

Attendance at normal Council meetings was as follows: E. Gordon 12, W.H. Murdoch 12, H. Jay 12, J. Scott 12, M.J. Corrigan 12, A. Reeves 12, R. Napier 8, S. Clemesha 9, D. Dawson 8, E. Marygold 11.

Both Bob Napier and Doug Dawson were granted leave for 3 and 1 meeting respectively. Several other meetings were held for special purposes and were well attended.

The Orchadian was produced 5 times during the period despite the difficulty of securing suitable articles. The 5 issues however, contained 20% more material than the previous year. Murray Corrigan is continually in need of material, particularly of a general nature. We have several members who regularly contribute articles of a purely botanical nature but your Council feels that there is a need for articles of a horticultural or general nature. I know that I have said this before on several occasions and I will probably say it again. Please send to the Editor any articles you can think of that may interest your fellow members.

Remember that the other fellow is just as interested in your methods as you are in his. Our very hard working Immediate Past President was given the job of "Public Relations" and I am happy to be able to report that due to his efforts there are two further groups in the course of formation, one in Melbourne and one in Brisbane, in fact by the time this report appears in The Orchadian they will be active, Bob Smythe, a member from Townsville is also working to get a group formed there. Sydney, Warringah and Newcastle Groups meet every month and members of the Council attend the first two regularly. I have with our Secretary visited Newcastle Group during the Year. Membership of all the Groups is increasing steadily.

Membership of The Society is now 383 and as with the Groups is steadily increasing. The Society's publication of The Australasian Sarcanthinae has already sold about 150 copies and is continuing to sell regularly. I conclude with my best wishes for a successful year with your orchids.

Eric G. Gordon

A REDUCTION OF Diuris colemane Rupp TO A SYNONYM OF Diuris tricolor FitzG.

W. Brinsley

The aim of this paper is to show that Diuris tricolor FitzG. and Diuris colemanae Rupp are conspecific.

Diuris tricolor FitzG. Journ. Bot. XX111 (1885) 137. Illustrated FitzGerald's Australian Orchids Vol. 2. p. 5.

Range of this species is given in Rupp's Orchids of New South Wales as extending over the Central West of New South Wales and parts of the adjacent tablelands. Hamilton collected it at Guntawang and in the Mudgee area. From the spring of 1958 to recent date the author collected specimens in this area and about the Goulburn River Valley (N.S.W.) and at points further westwards. These specimens from the slopes tended to be rather robust in stature, with medium length lateral sepals. Further west, from Dubbo westwards, plants were reduced in height, doubtless due to the more severe conditions, and lower sepals were often quite long. (a parallel exists with Diuris punctata forms). Specimens from Girilambone agreed well with descriptions of Diuris colemanae, being rather small flowered with long lower sepals, yet about Dubbo and Narromine intermediates were collected. The suspicion that the two species were conspecific grew, and specimens examined in the National Herbarium in Sydney, labelled apparently by Rupp, as D. colemanae, were found to be consistent with FitzGerald's plate of D. Tricolor. Over the years, a large colony of this species was kept under observation at Dubbo. Considerable variations in, particularly, the length of the lower sepals and the shape of the mid-lobe of the labellum, were noted. Difference maintained by Rupp as separating the two species cannot be maintained. A comparison of the descriptions of D. tricolor and D. Colemanae, tabulated below, will show the similarity between the two. Virtually the only differences lie in the relative lengths of the lower sepals and in the shape of the labellums. Reference to the table showing the lengths of lateral sepals recorded from 18 specimens in the one colony at Dubbo, shows the variations encountered in individual specimens. The illustrations will show labellum variations from specimens from a number of localities. Supposed differences can then be absorbed within the variations encountered. Reference to FitzGerald's plate will show that Rupp's key (Orchids of N.S.W. p. 11), errs in stating that the lateral sepals of D. tricolor are not more than twice as long as the petals. Description given in Rupp, gives lower sepal length of about 34 mm. with a petal length of 17 - 18 mm. FitzGerald's plate shows a variation in sepal length of between 3 and 4 cm. In the one colony at Dubbo, sepal lengths of between 2 cm and 5 cm. have been recorded. Variations in the shape and relative size of the labellum mid-lobe and lateral lobes are such that both species could be recognised from the same colony. If the description of D. tricolor is broadened slightly to encompass these variations, D. colemanae will be found to be inseperable from this former species, and as D. tricolor has priority, D. colemanae must be considered a synonym for this very attractive species.

References: Diuris colemanae Rupp, Vict. Nat LV11 (1940) 63. Orchids of New South Wales, H. M. R. Rupp, 1943 p. 13. Australian Orchids, R.D. FitzGerald 11.5 Journ. Bot. XX111 (1885) 137.

Diuris tricolor	Diuris colemanae
Plant and leaves ; robust to 42 cm tall. 2 to 3 short leaves.	Plant and leaves; slender, 25-35 cm. tall, 2 leaves to base of inflorescence.
Dorsal sepal ; only about 10 mm. long. Nearly as broad.	Dorsal sepal; Rather broad, 8 - 10 mm. long.
Lateral sepal; about 34 mm. long, green.	Lateral sepal; 4 - 5 cm. long, lax, very slender, dark green.
Petals ; 17 - 18 mm. large, ovate lamina on short claws.	Petals; 10-14 mm., lamina ovate-lanceolate Claw variable in length.
Labellum; lateral lobes large, irregular crenate margins. Mid-lobe, lamina small.	Labellum; lateral lobes small, sometimes broader than long. Outer margin more or less crenate, mid-lobe, lamina broad lanceolate or almost rhomboid.
Column wings; Nearly as high as anther, Dentate.	Column wings ; never quite as high as anther, sometimes short and broad.

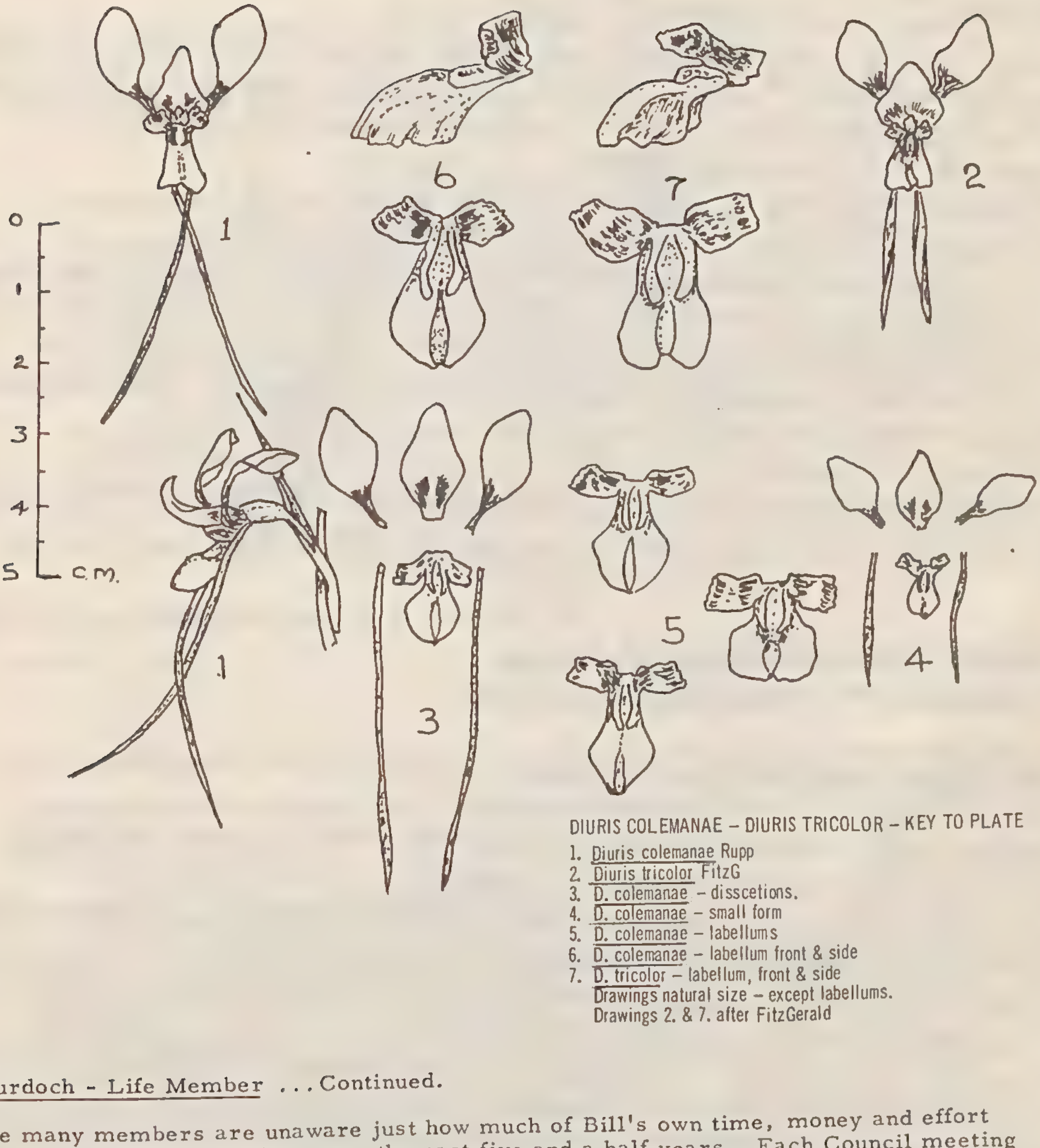
Colour is described for D. tricolor as yellow with purple splashes about the centre, purple petal claws and green lateral sepals. For D. colemanae , pale orange with purple brown markings, chiefly on the labellum. Dark green lateral sepals.

Length of lateral sepals of 18 specimens of D. colemanae

	5 cm.	4.5cm	4 cm.	3.5cm.	3 cm.	2.5cm	2cm.
No.	1	2	3	2	2	4	4

W. Brinsley, P.O. Box 154, Ballina, N.S.W. 2478

D. tricolor - Fitz.
D. colemanae - Rupp.



DIURIS COLEMANAE – DIURIS TRICOLOR – KEY TO PLATE

1. Diuris colemanae Rupp
2. Diuris tricolor FitzG
3. D. colemanae – disscetions.
4. D. colemanae – small form
5. D. colemanae – labellums
6. D. colemanae – labellum front & side
7. D. tricolor – labellum, front & side

Drawings natural size – except labellums.
Drawings 2. & 7. after FitzGerald

W.H. Murdoch - Life Member ...Continued.

I am sure many members are unaware just how much of Bill's own time, money and effort have been poured into The Society over the past five and a half years. Each Council meeting alone, calls for Bill to inconvenience himself as he lives at Coal Point, near Toronto, and must travel by car to Gosford railway station and then by train to Sydney to attend Council meetings which are held at 6.30 p.m. After a long and arduous meeting he turns about and retraces his route back to Coal Point. As you will have noticed your Council has held 52 Council Meetings as well as many

continued page 19

A NEW VARIETY OF *Caladenia carnea* R. Br.

W. Brinsley

Caladenia carnea R. Br. var *attenuata* W. Brinsley var. nov.
Plants procera et gracillima, 12-24 cm. alta, caule foliisque subviridis. Flos minimus (or perpusillus), candidus, plerumque minus qual 1 cm. diametro; sepala 5-7 cm. longa, circa 2 mm. lata, petala breviora et angustiora. Sepalum dorsale super solumna manifeste cucullatum, nullo modo erectum. Perianthi segmenta minus quam in specie acuta. Lobi laterales labello rotundati marginibus integris, medi-lobus flavus, angustus, marginibus integris vel crenulatis, sine callis superficie superiore, recurvus (or recurvatus). Labellum maculatum columnaque maculata ut in specie.

Caladenia carnea R. Br. var. *attenuata* W. Brinsley var. nov
Tall and very slender, 12-24 cm. high, stem and leaf light green. Flower very small, pure white, usually less than 1 cm, in diameter; sepals 5 mm. - 7 mm. long about 2 mm. wide, petals shorter and narrower. Dorsal sepal prominently cucullate over the column, never erect. Perianth segments less acute than in the species. Labellum lateral lobes rounded with entire margins, mid-lobe yellow, narrow, margins entire or crenulate, upper surface without calli, recurved.
Labellum and column marked as in the species.
Flowering period : Discovered in flower 28th, October, 1964
Distribution : Known only from the type locality, Durama near Bathurst at approximately 2,000 ft. altitude. *Holotype*: Durama N.S.W. 28th October 1964/Brinsley/
The decision to seek recognition of this variety was not arrived at without a great deal of thought and examination of literature and specimens. The variability of *C. carnea* is appreciated and I have in my herbarium specimens from widely separated localities over its range in N.S.W. and also from interstate. This variety does not seem to be included within any other published variety of *Caladenia carnea*, and is quite distinct from the usual forms of this orchid, being very slender and tall, which inspired the varietal name, with very small white flowers and a cuculate dorsal sepal instead of the more or less erect dorsal of the species. Other differences will be noted from the description above. All specimens seen had one flower only.
C. carnea var. *attenuata* commences flowering as the normal types of the species finish i.e. in late October. It was found growing near the crests of gravelly hills at about 2,000 ft. altitude by Messrs. B. Whitehead, C.K. Ingram, P. Althofer and the author at Duramana, north of Bathurst, N.S.W. Considerable numbers of flowering specimens were seen over a fairly restricted area. Other orchids seen in the vicinity were a few withering *C. carnea* of the 'usual' type; several forms of this species which resembled var. *gigantea* Rogers, usually many flowered, deep pink and robust, and an occasional *Caladenia filamentosa* R. Br.

W. Brinsley, P.O. Box 154, Ballina, N.S.W. 2478

NEW SYNONYMS FOR TWO TERRESTRIAL ORCHIDS.

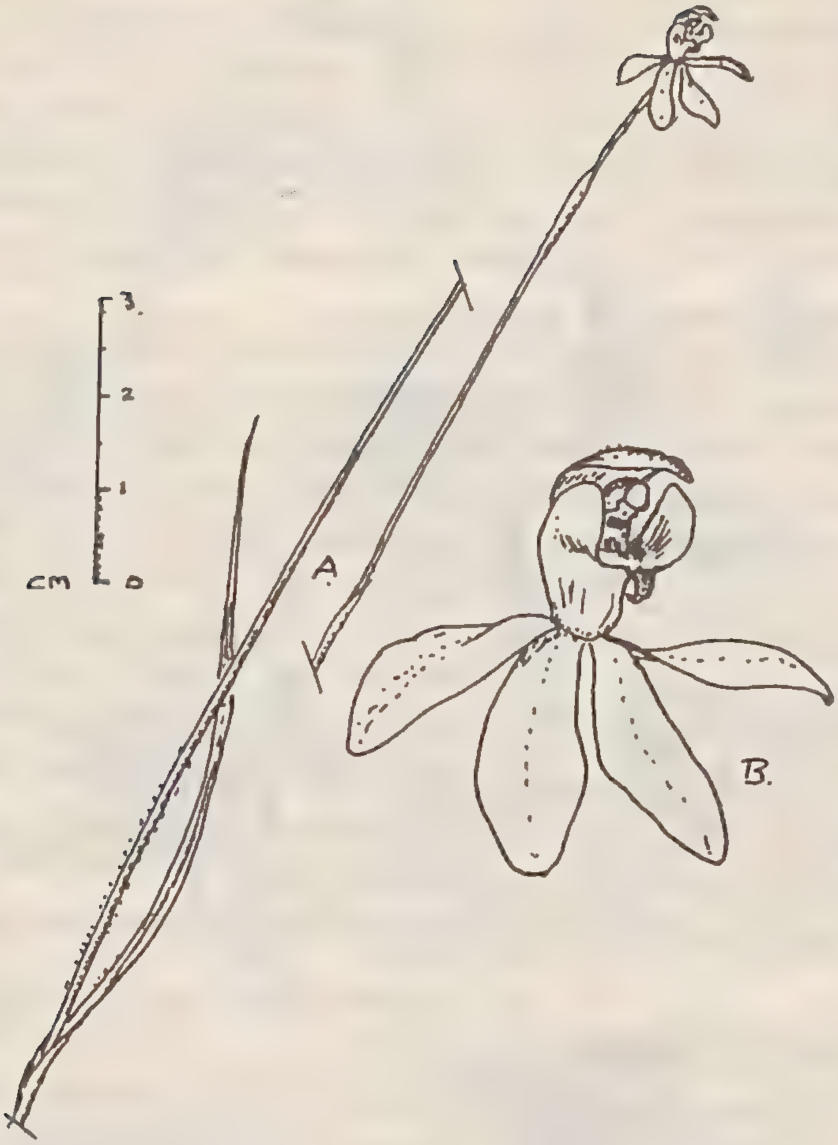
S.C. Clemesha

Diuris dendrobioides FitzG. and *Chiloglottis trilabra* FitzG.

When one looks through R.D. FitzGeralds "Australian Orchids" one of the most striking plates is that of *Diuris dendrobioides* FitzG., Austr. Orch. 1.7 (1882)
This plant has not been found since FitzGerald described it. Its labellum has unusually large broad side lobes, though these are about as large as the upper range limit found in *D. punctata* var. *longisima* and the mid-lobe is quite typical of this plant. The indistinctly clawed petals are also commonly observed in *D. punctata* var. *longissima*: "Its colour range is most pronounced - from white with deep purple suffusions to deep reddish purple" - Vict. Nat. - Vol. 81, 137 (Sept. 1964) so this variation is not a significant departure assuming FitzGerald succeeded in capturing the correct colour - a point which is open to question.
The remaining point for which this plate is outstanding is the lower sepals, which are not slender and green as is normal in *Diuris*, instead they are broad and petal-like (flowers like this are apetaloid forms). Nicholls in Barret, Sun Nature Book, n. 5:27 fig. c, col. (1934) illustrated an apelaloid form of *D. sulphurea* and merely noted it was an apetaloid form. No attempt was made then, or has been since to describe this as a species as it is merely an abnormal specimen and has in no way established itself away from normal specimens (or even in significant numbers among them). This also applies to *D. Dendrobioides* which should never have been described as a species and should merely have been recorded the same way. Consequently *D. dendrobioides* must now be regarded as a synonym of *D. punctata* var *longissima*.
FitzGerald's following paragraph immediately precedes his description:

"*Diuris dendrobioides* may not be considered an establised species, as I only found two plants at Cunningham's Plains, near Murrumburrah, and Mr. A.G. Hamilton has obtained what he considered to be the same plant at Guntawang, near Mudgee. The two plants observed by me

Continued page 17



CALADENIA CARNEA R. Br. var. ATTENUATA W. Brinsley – KEY TO PLATE

A. Plant to scale X 6/5
B. Flower........... X 5

New Synonyms For Two Terrestrial Orchids continued

grew close together in a field, where numbers of D. elongata (now D. punctata) and D. pedunculata were in flower, and they may have originated as a cross between the two species. They had, however, some characteristics very distinct from both, such as the breadth, shortness and colour of the lower sepals. They are, I think, worthy of a name, whether others are found elsewhere or not. If not, it is very interesting as an example of a very distinct form, of which two examples at least have existed, and which, if it could establish itself and become numerous, would undoubtedly be considered as a species"

There is no evidence that this plant is a hybrid as stated by FitzGerald D. pedunculata has very tiny lateral lobes of the labellum and has normal narrow green lateral sepals and is yellow in colour. If D. dendrobioides were a hybrid with D. pedunculata as one parent, then its labellum would have smaller lateral lobes than the average D. punctata var longissima rather than as large, amongst the largest found in that variety. FitzGerald has achieved his purpose in recording an example of an unusual form, but no more effectively than Nicholls did with the form of D. sulphurea which he recorded very satisfactorily without attempting to give it specific, or other classification.

continued page 18.

A FIFTH ACIANTHUS FOR NEW SOUTH WALES.

Early in May, 1968, the writer collected specimens of what was apparently an Acianthus species from near Broken Head about seven miles south of Byron Bay, in northern N.S.W. The specimens were even smaller in floral parts than A. exsertus, and were remarkable for the relatively large labellum bearing five small acute lobes, or teeth; and also for the unusual leaves, some of which were typically Acianthus leaves, more or less cordate, while equally as many were regularly or irregularly lobed. The plants were evident in considerable numbers, but almost all had finished flowering and bore seed capsules. Sufficient flowers were collected to dissect and draw. Specimens were despatched to the New South Wales Herbarium, where the specimens were identified as Acianthus amplexicaulis (F.M. Bail.) Rolfe, a Queensland species. The following description was supplied by the N.S.W. Herbarium, extracted from Bailey, Qld. Flora 5:1560 (1902)

"Plant terrestrial or growing in masses of decayed epiphytes on the stems of trees. Stems 4 - 6 inches high, arising from globose or oblong tubers of from ¼ to ½ inch in diameter, with a small apiculate sheathing scale - like leaf at the immediate base, from which the stem is naked for about 2 inches, where there is a broad, deeply, palmately variously lobed sessile bract or leaf about 1 inch in diameter, which surrounds the stem with its lobed lamina in an amplexicaul manner; sometimes there is a second smaller but similar leaf a little higher up the stem. The rest of the stem is occupied by a spike-like raceme of small greenish-white flowers, each subtended by a cordate-acuminate bract, pedicels with ovary about 3 or 4 lines long. Sepals and petals very narrow-linear, almost filiform, about 2 lines long. Labellum somewhat reflexed shorter than the petals, cuneate oblong, slightly cordate at the base, the end sharply 3-toothed or lobed, the central tooth longer than the others, discs with two thick glabrous ridges. Column very narrow, incurved, nearly as long as the labellum. Anther small, of a rather bright reddish-brown ... Microstylis amplexicaulis Bail., Bot. Bull. 3./On the ground and in decayed epiphytes. Scrubs of Eudlo Creek, Field Naturalists, March, 1891".

Acianthus sublestusA. W. Dockrill, Nth. Qld. Nat. 23(110):3 (1955) was later withdrawn by the author as being identical with Acianthus amplexicaulis (F.M. Bail.) Rolfe.

The New South Wales specimens agree very well with the above description except for the presence of five, not three, teeth of the labellum apex. This may be an inconsistent feature of the species, or perhaps may not have been evident on dried material.

My thanks to the New South Wales National Herbarium staff for assisting with the identification of the specimens and for supplying the above description.

W. Brinsley, P.O. Box 154, Ballina, NSW 2478

New Synonyms for Two Terrestrial Orchids ... continued W. Brinsley

Chiloglottis trilabra FitzG., Austr. Orch. 11, 2 (1885) has much in common with Diuris dendrobioides FitzG. Both are tetralogical forms. However in C. trilabra calli characteristics of the labellum have appeared on the petals, whereas in D. dendrobioides these characteristics have appeared on the lateral sepals. Both have not been rediscovered since they were described. The labellum of this species is normal for C. reflexa but the petals instead of being narrow are identical in shape and dimensions with the labellum and are similarly furnished with calli. FitzGerald states that he found about 20 plants of this remarkable form at Mount York in the Blue Mountains. As C. reflexa multiplies freely vegetatively and forms large colonies it is not surprising that about 20 specimens were found. However nothing has been seen of it since. As it is only a tetralogical form which appears not to have reproduced itself, it must now be regarded as a synonyn of C. reflexa and not as a valid species.

This type of abnormality is known in at least two exotic orchid species e.g. the Indian Dendrobium nobile Lindl. var cooksonianum and the Brazilian Cattleya intermedia Graham var. aquinii. As these are easily cultivated the abnormal forms have been preserved and separated by varietal names principally for horticultural reasons. However Chiloglottis trilabra has not been preserved and no pressed specimens of it are known to exist. Consequently it does not require separation by specific or any other status unless perhaps it should be rediscovered in quantity.

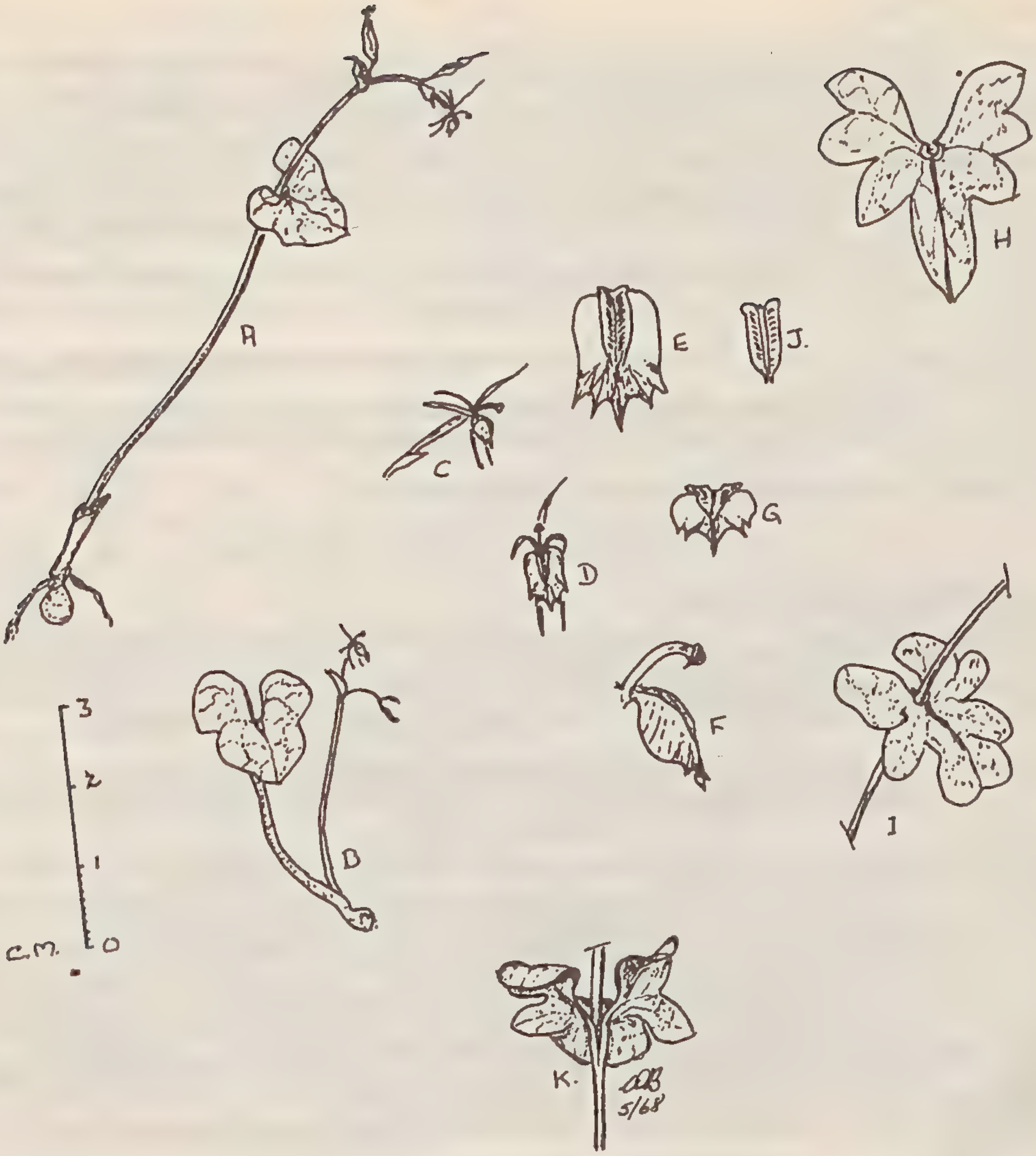
S.C. Clemesha, 18 Wesson Rd., West Pennant Hills, N.S.W. 2120

Dear Member,

We have been in existence for over five years. Our formation has been fully justified by the success of our contribution to Native Orchid literature. The Australasian Sarcanthinae, and Vols. 1 & 2 of The Orchadian bear ample proof of this.

In the matter of CONSERVATION however, we have made little progress. The stark truth is that many of our best orchids are still leaving our forests, despite the multitudinous ideas, suggestions, platitudes and schemes of conservation, that depend on anybody but themselves to effect, and as yet, no solution.

continued page 25.



ACIANTHUS AMPLEXICAULIS - KEY TO PLATE
A. Small plant.....................X 3/2
B. Unusual form...............to scale
C. Flower from side ....X 3
D. Flower from front............X 4½
E. Labellum – front...........X 6
F. Labellum & column........X 6
G. Labellum - end...............X6
H.I.& K. Leaf forms......to scale
J. Labellum callus.............X 6 approx.

Broken Head, N.S.W. 22nd. May 1968. Coll W. Brinsley.

Dear Member.. Continued

I have contended, for some time past, that Species seedling raising is the only answer. There has been some little progress on these lines, but at best, it is very elementary. Our objective is Species, and NOT Hybrid raising. The latter is now a popular activity, directed solely at personal profit. Expectation of profit, (monetary profit, that is), cannot be considered, proof of which is found in that commercial houses will not touch them. Forest plants are too easy to obtain.

The ideal solution of this problem would be the establishment of a laboratory, equipped with the necessary paraphernalia to permit a start to be made. This however, would entail more capital outlay than is at present available.

continued page 20.

Dear Member.. continued

A possible avenue to assist, by members having difficulty in assisting in other spheres, would be by DONATION. In the meantime some preparation can be commenced. Seed raising still presents many difficulties. Some genera, in fact, are unresponsive to normal procedures, and present a real challenge. On the other hand, the majority of our orchids are being successfully grown, and seed is being raised. Once started, we should have no dearth of suitable material.

We have members who are flasking experts. How many are prepared to advise, or better still, to undertake some of the work? Accommodation for flasks is a major consideration, caretaker members could function here.

Unflasking and growing on, of the seedlings (itself a critical period) would make increasing demands on space, but as it would represent the final stages of our work, need not be considered a problem.

Reliable seedlings, gratis, or at a nominal cost, should go far towards removing the incentive of the despoilers of our forests.

DO YOU AGREE? or, more to the point, are YOU prepared to indicate your support?

Some indication as to numbers, location, and the type of assistance you can offer, is an essential preliminary.

Finally, Your reply, and Comments, are of prime importance

W.H. Murdoch, Robey Road, Coal Point, N.S.W. 2283

A NEW STATUS FOR A N.S.W. DIURIS

S.C. Clemesha

The genus Diuris is well known for problems in identification that have resulted from the description of natural hybrids which do not seed true to type or cross freely with other species. growing near them. However these are not the only problems as the status of a number of earlier species (principally those described by R.D. FitzGerald) is far from satisfactory.

Diuris punctata Sm. var punctata forma striata (Rupp) Clemesha, comb. nov. et. stat. nov
Basionym: D. striata Rupp, Orch. N.S.W. (1943) 15. Clemesha, The Orchadian 2, 130 (January, 1968)

Synonym: D. spathulata FitzG. Aust. Orch. 11, 4 (1891) non Sw. (1805)

This plant differs only from D. punctata var. punctata forma punctata in the presence of darker purple striations on a light mauve background on the dorsal sepal and labellum.

Distribution: Known only from two widely separated localities - Forbes N.S.W. where collected by Sheaffe in November and Smokey Cape district where rediscovered by C.K. Ingram (who originally discovered it in the area a number of years earlier), B. Whitehead and the author. About 20 specimens were seen. All except one were D. punctata var. punctata forma striata and it was D. punctata var. punctata forma punctata. Curiously the more common D. punctata var. punctata forma blakneyae was absent. These specimens were determined by A.W. Dockrill whose excellent review of Diuris punctata is in Vict. Nat. Vol. 81 (Sept. 1964).

This form is treated as above, partly because of its distinctive colour pattern and partly because of its history.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills, N.S.W. 2120.

Caladenia alba R. Br. AND ITS VARIETIES

W. Brinsley

This winter and early spring flowering Caladenia was, and is, quite common about parts of Georges River in N.S.W., flowering from late April to September. Many of the specimens seen over the years by the author had the tri-coloured column said to be typical of Nicholl's variety, yet these forms grew intermingled with others which were without these markings and were inseparable from C. alba var alba. Those with the tri-coloured columns were frequently pigmented with different shades of pink or mauve, often quite attractively. This pigmentation was by no means exclusively the property of the var. picta and the other typically C. alba var. alba specimens were similarly coloured. After collecting this species and its alleged variety from a number of localities up and down the New South Wales coastline, and encountering the same mixed colonies as found near the Georges River, the opinion was formed that var. picta did not merit varietal status; intermediates were commonly found connecting the var. alba and the var. picta.

continued page 21.

Caladenia alba R. Br. and Its Varieties. continued

Recently (May 1968) the writer found a large colony of Caladenia alba var. alba, again intermingled with var. picta, at Wardell, about 10 miles south of Ballina in northern N. S. W. Many of the specimens carried two blooms, and on one specimen, now in the authors' Herbarium, one flower was typically var. alba and the other just as typically var. picta, Some collectors have suggested that the early flowering forms of this species are invariably var. picta, but this cannot be supported. While there does appear to be a decline in the numbers of var. picta seen later in the flowering season, it may be that the colder weather conditions in winter affect the pigmentation of certain specimens resulting in the tri-coloured columns. In the author's opinion, var. picta does not warrant varietal status and should be absorbed within the species.

W. Brinsley, P.O. Box 154, Ballina, NSW 2478

North Queensland Orchid Safari continued from Vol. 3, No. 1

John Young

I had seen Cooktown orchids in nature - an ambition I have had for many years - and at a time when all hopes of doing so were looking as dismal as the weather. I would like to be able to write that this little colony is flourishing, but I cannot. There were many more dead plants than live ones, and just why they are dying is hard to say. Something had been feeding on the pseudobulbs, perhaps 'possums" and in a few cases, plants had been half torn from the trees, but this accounts for only a very few of the fatalities. I have heard it said that Cooktown orchids have only a limited life span in nature, and that dead plants are not uncommon, even in thriving colonies. If this is so, then the little group we saw seems doomed, for we could see no seedlings coming on anywhere. Perhaps the whole trouble lies with over collection and the resultant scarcity of flowers in the wilds. The pollinating insect might have found it not worth while in these areas now, and have moved to where the orchid is still plentiful. This would mean no seed, (we saw none) no seedlings, and so on. The sad fact of the matter is that there are many more Cooktown orchids in and around Brisbane than there are within a fifty mile radius of Cooktown. We had a last look at the beautiful purple flowers dancing on a gentle breeze, and wished them luck. Somehow it had seemed quite strange for we city dwellers to see such a familiar sight right out there in the wilderness. Incidentally, while searching for the Cooktown orchids we found a large clump of Cymbidium canaliculatum on a fallen tree, a few plants of Nervilia holochila, and many Spiculaea irritabilis, these latter bearing their fascinating little flowers.

The rain had become heavier, and even more steady, and it was becoming very obvious that we had to hurry back to bitumen roads again. Roads which had been dry and dusty on the way in, were now unbelievably 'greasy' and towards the finish we were barely making it over the hills, none of which are at all steep, thank goodness. I am quite sure that one day later the road would have been passable only to four-wheel-drive vehicles. Even as it was we had to use our ropes and gear to haul a car back onto the road. It had literally slid off sideways! After this little episode we were covered from head to foot with mud. At a little clear fast-flowing creek just outside Mossman we made ourselves presentable again, thanked our lucky stars we had got off the Cooktown road in time, and then drove into Mossman to book into an hotel. ("Heaven" after several days of 'roughing it', and of Jack's cooking.)

We had a contact in Mossman who put us onto an aboriginal friend. This aboriginal had often accompanied our contact on orchid expeditions and he knew exactly where many interesting species were to be found, Dendrobium toftii and the now rare Phalaenopsis amabilis var. rosenstromii, being prominent among these. We set off post haste to enlist this man's valuable services but unfortunately he was far more interested in hunting down a few wild pigs which had been routing into his sugar cane than in hunting for rare and beautiful orchids. We tried all manner of things to persuade him but somehow the pigs had the stronger attraction. It soon became apparent that we were getting nowhere. How about the following day then? Could we engage his services then? No, the scrubs would be too wet, slippery and dangerous. We could scarcely argue against either for it was still raining. In determined fashion we set off to find the orchids ourselves.
As we drove along we could see plenty of Dendrobium smilliae in the trees by the road side so when we came to an area where the trees had been pulled over and shoved into huge piles, we decided to have a closer look. Sure enough there were many large plants of D. smilliae in the wreckage, but the pseudobulbs had been so mutilated in every case that we were able to salvage only scraps. What a great shame it is that something cannot be done to save at least some of the orchid plants where this land clearing is going on. No doubt the majority of plants would have been in perfect order had they been taken from the trees straight after they had been pulled over. It is when the trees are bulldozed into heaps that the real damage is done. Dendrobium smilliae seems always to grow high up off the ground in rather exposed positions. It favours crotches and forks in the trees where a little humus accumulates, and it is not restricted to rain forest. The area we were now in was rather open hardwood forest. Rainfall is high and the climate warm. We gathered together our bits and pieces and pushed on. A fallen forest is indeed a sorry spectacle.

continued page 25.

A REDUCTION OF Diuris citrina Nicholls TO A SYNONYM OF Diuris althoferi Rupp

W. Brinsley

Diuris althoferi Rupp, Proc. Linn. Soc. N.S.W. Vol 73 Pts. 3 & 4, 1948
Diuris citrina Nicholls, Vict. Nat. Vol 66 No. 11 March 1950

During the course of collecting specimens of Diuris species over a number of years in the western parts of New South Wales, the author had been impressed with the similarity of published descriptions of a number of species, including Diuris althoferi Rupp and Diruis citrina Nicholls. During the weekend, 26-27th September, 1964 an opportunity arose to collect specimens of each of these species from the type habitats. Messrs. Peter and George Althofer of Dripstone had been the original collectors, and had at different times submitted Diuris material to both Rupp and Nicholls. With Mr. C.K. Ingram, the author was shown the exact spots where the collections were made in each case, and was able to compare fresh flowers, collected in quantity from each area. Colour transparencies on 35 mm film were taken and dissections made. No significant differences in morphology were apparent. The specimens from Yamble and Biranganbil were perhaps less marked with brown than the Mt. Arthur collections, however soil and also shade factors might account for this; plants at Yamble were in legion, mostly in light shade to open sunlight, the Mt. Arthur plants were in slightly heavier shade, at a slightly higher altitude, and were also common. The base colour was a remarkable shade of lemon yellow. Identical variations in labellum shape were noted in each collection.

As a result of these collections a range of specimens was sent to Mr. J.H. Willis of the Victorian Herbarium, who kindly compared the material with Nicholls' plates and specimens, and who has advised that the material is inseparable, and that Diuris althoferi is indistinguishable from Diuris citrina.

The type collections of Diuris althoferi and Diuris citrina were made during September and October 1947 at Guntawang and Yamble, and at Mt. Arthur, Wellington respectively, by Messrs. P and G. Althofer of Dripstone via Wellington. Diuris althoferi Rupp has priority and remains the valid name for the species; a description of the species follows;-

A slender plant 20-35 cm. or more high. leaves 2-3, slender to rather robust, light green and rather lax or darker and more rigid, 16-22 cm. long or more. Flowers 3-9 in a loose raceme on longer slender pedicels, generally clear pale lemon yellow with sometimes brown markings, ovary elongated, bracts loose, subulate and usually exceeding pedicels. Dorsal sepal somewhat ovat-lanceolate, about 1 cm. long usually with a large dusky forked blotch at the base, apex more or less obtuse. Lateral sepals 16-29 mm long, linear, parallel or crossed, green and brown. Petals ovate, neither spotted nor blotches, clear yellow, lamina about 12 mm. claw dark, 4-6 mm. Labellum three-lobed, mid-lobe about 10-12 mm. long, sub-orbicular to orbicular, rarely almost rhomboid, with a low keel, base of mid-lobe rather narrow and short, with two well separated raised parallel plates, yellow, or with a few brown marks on lamina. Lateral lobes about 4-6 mm., almost lanceolate, obtuse or shortly acute spreading, sometimes reflexed upper margins, denticulate. Column wings narrow, irregularly triangular with subulate apex, rather obscure from the front, more or less as high as the anther. Anther obtuse, as high as rostellum.

September - October 1947 G. Althofer, Yamble and Guntawang, Central Western N.S.W.

This species often resembles Diuris palachila Rogers. The Diuris aurea - platachila group requires critical revision; present delineations of certain species appear to be too restrictive. Future investigation may indicate the presence of a small number of variable species in the Central West of N.S.W., instead of the rather bewildering number at present recognised.

A REDUCTION OF Diuris latifolia Rupp TO A SYNONYM OF Diuris sulphurea R. Br.

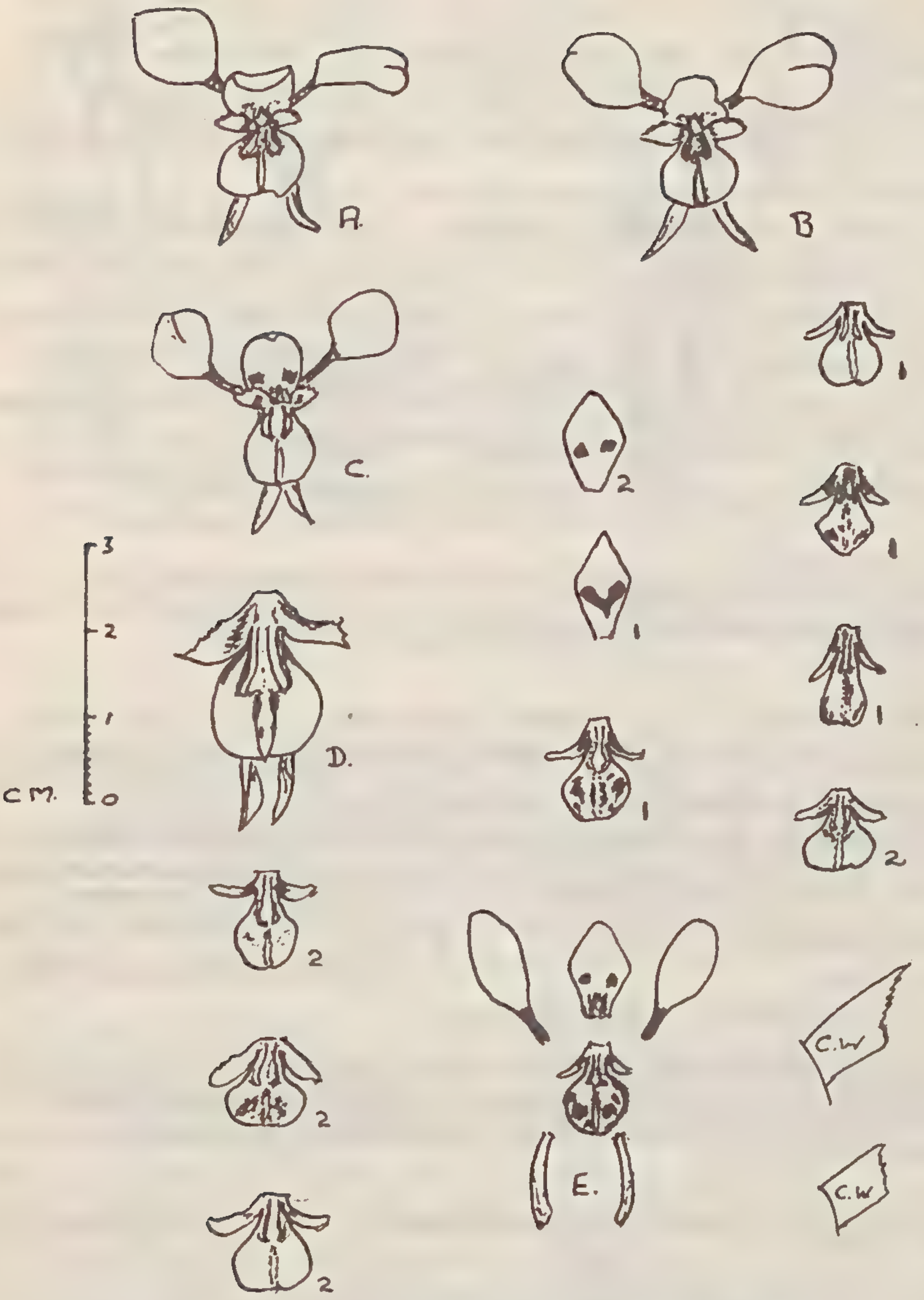
W. Brinsley

Diuris latifolia Rupp, Cont. Nat. Herb. N.S.W. Vol. 1. No. 6.

During the past ten years the author has searched in vain for specimens of this Diuris, and with other collectors has visited the type locality and adjacent areas without success. Examination of Rupp's type specimen in the National Herbarium several years ago served to confirm a growing conviction that Diuris latifolia is merely a variant of the much more common Diuris sulphurea R. Br., an opinion which had been prompted by Rupp's drawings published with his description and by remarks made by Rupp in letters to G.W. Althofer, in which he expressed the opinion that his "Diuris latifolia might not stand."

The specific name Diuris latifolia is based on the width of the foliage (see description below) but at this stage (1950) Rupp had not encountered many of the western specimens of Diuris collected by the Althofer brothers about Wellington, N.S.W., and as a result could not foresee. that his statement of "probably the broadest in the genus" might be proven incorrect. The writer has a number of Diuris specimens in his Herbarium from the Central West of NSW with leaves of

continued page 23



Diuris Althoferii Rupp.

KEY TO PLATE

A. Diuris citrina Nicholls, from type locality, Wellington, N.S.W.
B. Diuris althoferii Rupp, from type locality, Yamble, N.S.W.
A. & B. Drawn from 35mm. color transparencies.
D. Labellum of Diuris citrina Nicholls, from Nicholls plate.
E. Diuris althoferii, dissections, from Herbarium specimen.
Labellum variations, No. 1 from type locality of D. citrina.
No. 2 from type locality of D. althoferii.

Dorsal sepals showing variations in markings from localities as above. column wing variations to be encountered in any collection show. Drawings approximately to scale, except labellum D., and column wings which are much enlarged.
My thanks are due to Mr J.H. Willis of the Victorian National Herbarium for kindly comparing numerous specimens.

A Reduction of Diuris latifolia Rupp to A Synonym of Diuris sulpurea R. Br. continued

1 cm. in width. Diuris sulphurea generally does not show a great deal of variation in coastal specimens, however, this species varies considerably in size, colouring and shape in specimens from west of the Dividing Range or from the Range itself. Diuris sulphurea has a characteristic "set" to the flowers; this same stance was apparent in the type of Diuris latifolia. Almost all

continued page 24.

A Reduction of Diuris latifolia Rupp to A Synonym of Diuris sulphurea R. Br. continued.

Diuris species have two raised glandular plates at the base of the labellum mid-lobe. N.S.W. exceptions to the rule are Diuris longifolia R. Br., a fine species recorded from the extreme south east of the state, Diuris sulphurea R. Br. and Diuris latifolia Rupp. The author feels that this point is significant, particularly when considered with a comparison of the main features of Diuris sulphurea and Diuris latifolia as tabled below. Rupp's description of Diuris sulphurea in "Orchids of N.S.W.' p. 19, is rather brief; a more complete description appears in Flora of South Australia, Pt. 1 p. 239 (1960)

Reference to the drawings attached will show the similarity between a specimen of D. sulphurea from Rockley near Bathurst and Rupp's illustration of D. latifolia. The single flower illustrated from Forster on the mid-north coast, also resembles Rupp's illustration, while the dissection of the larger flower from Wambool serves to indicate some of the variations to be encountered with in Diuris sulphurea. The dark anther; two dark "eyes" on the dorsal sepal, and the typical colouring of Diuris sulphurea are almost always present, while the dark band on the labellum lamina is often absent. As colour markings of Diuris sulphurea and Diuris latifolia are similar, no mention is made of these in the table. This table and the illustrated specimens show no significant differences between Diuris latifolia and Diuris sulphurea, except in the width of the leaves. This factor is known to be variable and unreliable. A plant of Diuris maculata collected at Rockley with very broad foliage reverted to normal foliage after a season's cultivation. Plants collected from grazing lands frequently exhibit shorter foliage than is normal.

Specimens of Diuris sulphurea in my Herbarium frequently have column wings as high as, or higher than, the anther. This is apparently a variable feature as Rogers and Rupp differ in this regard in their descriptions. Rupp's description of Diuris latifolia is given below:-

Diuris latifolia W. Brinsley sp. nov.

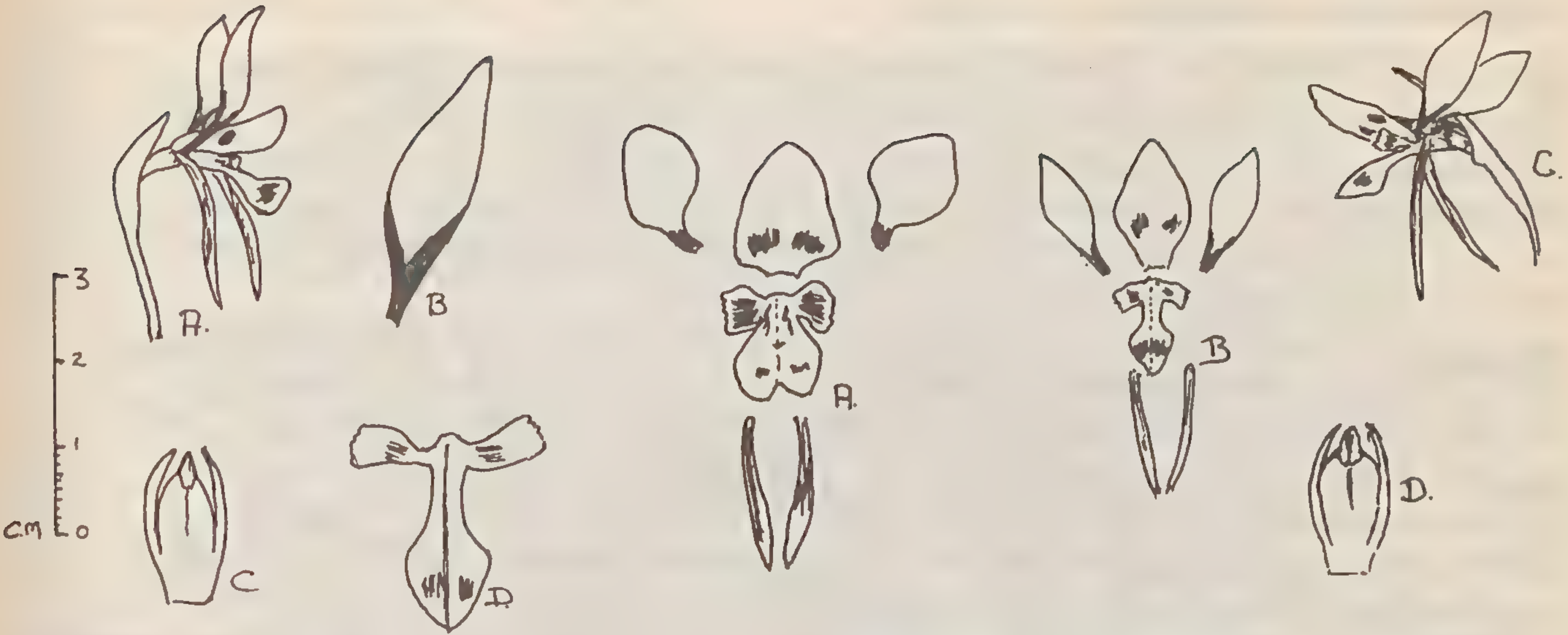
A robust plant of up to 30 cm. high. Leaves 2 - 3, probably the broadest in the genus, about 18 cm. long and 1 cm. wide for the greatest part of their length. Flowers 4-7, lemon yellow with some brown markings, dorsal sepal large, obovate, about 20 mm. long with two dark brown blotches, not connected. Lateral sepals greenish linear, slightly longer than the petals. Petals obliquely lanceolate, almost cuneate, the short claw very dark; length of petal with claw about 22 mm. Labellum about 14 mm. long with a narrow keeled lamina, the keel continued along the mid-lobe; lateral lobes 6-7 mm. long, obliquely cuneate, crenulate at the top, blotched towards the base, mid-lobe fan - shaped shorter than the lamina with two dark blotches about the middle. Wings of the column hardly denticulate, longer than the dark obtuse anther. Labellum devoid of callous plates along the lamina.

Baerami, via. Denman N.S.W. R.D. Crocket 10. 1949 Holotype.

The Rockley specimen illustrated is morphologically identical with Rupp's drawing, yet with linear leaves. Diuris latifolia does not possess any floral identity sufficiently distinct from Diuris sulphurea to maintain specific status and in the author's belief should be considered to be a synonym of Diuris sulphurea R. Br.

	Height	Leaves	No. flowers	Dorsal sepal	Lateral sepals	Claw	Petal & claw length - petals	labellum	C-W and anther
D. latifolia	to 30 cm.	2-3 about 18X1 cm.	4-7	large obovate about 20 mm.	greenish, linear slightly longer than petals i.e. 22-24 mm.	short very dark	about 22 mm. oblique lanceolate almost cuneate	about 14 mm. mid-lobe keeled, fan shaped, lateral lobes 6-7 mm. oblique cuneate	hardly denticulate longer than dark obtuse anther.
D. sulphurea after Rogers	about 50 cm	2-3 18-45 cm. linear	3-6	ovate. about 20 mm	linear about22 mm acuminate	5-6 mm.	20-21mm lamina elliptic	about 12 mm keeled, rhombo-cuneate. Lateral lobes hardly half length of mid-lobe, rather wide and blunt	C-W semi-ovate slightly longer than hardly pointed anther
D. sulphurea after Rupp	15-60 cm	2-3 long	1-7	usually very broad shorter than petals	linear, never greatly exceeding petals	short and dark	not stated, ovate	not over 16 mm. broad-ovate, keeled lateral lobes broad-truncate, nearly half length of mid-lobe	slender, not as high as anther

W. Brinsley, P.O. Box 154, Ballina, N.S.W. 2478



DIURIS LATIFOLIA - DIURIS SULPHUREA - KEY TO PLATE.

A. Flower from side ....to scale
B. Petal - reverse ....) scale
C. Column - front ....) unkmown
D. Labellum - above ....X 2
After H.M.R. Rupp.

A. Ex. Wambool - dissections..........to scale
B. Ex. Rockley ....to scale
C. Ex. Cape Hawke - Wallis Lake...to scale
D. Column - front.... ± 5 X ex. Rylstone

W.H. Murdoch - Life Member continued

dozens of work nights, when Orchadians were assembled and enveloped. I can say that very few of these meetings have ever been missed by Bill. A tremendous effort for a man who celebrated his twenty first birthday on Gallipoli. All members will join me in congratulating Bill on his justly deserved recognition.

North Queensland Orchid Safari. . . . continued.

At the Daintree River, after considerable trouble, we managed to get a small boat. This we rowed down the river close into the bank, as we gazed intently up into the mangroves for Dendrobium toftii. After a short time, Jack spotted a smallish plant, which, as it turned out, was to be the only D. toftii we would see. Further in, off the river, just behind the mangrove fringe grows another species of tree. They are tall and slender, not more than one foot in diameter at the butt, and trunks are very straight, smooth and unbranched for forty feet. On the sides of these trees, not lower than thirty feet from the ground we saw an occasional Dendrobium wilkianum. It was terribly hard work to climb up to one of these plants and then back down again because there was not a single branch on which to stop for a rest, and moreover the bark was wet and slippery. . Jack had gone off in the boat again looking for orchids along the bank and I was wallowing about in thigh deep sludge looking the hard way. As I was pulling myself free of the sucking black ooze by a mangrove root I noticed orchid roots low down on a small tree trunk near by. Frequently one sees the roots of the orchid before seeing the actual orchid plant, but in this case the roots practically were the plant! I had found one of our leafless and pseudobulbless orchids, Chiloschista phyllorihiza. The roots contain chlorophyll and they play a dual role of both roots and leaves. They are flat and ribbon-like, about 3/16" wide and up to a foot in length, and they radiate from a common centre which is actually the rhizome. This heart of the plant is very minute and strangely it grows in towards the tree trunk, and not away from it as is the case with other Sarcanthinae orchids. The flowers are superficially similar to those of Sarcochilus hillii but larger and flatter. Now that we knew where and what to look for, we found many more of these fascinating little plants. Conditions here in the mangroves were warm and the humidity was, of course, very high. The Chiloschista phyllorhiza. and Dendrobium wilkianum were in about half light, but Dendrobium toftii had chosen a position which afforded good strong light for the most of the day. Incidentally, amongst the mangrove trees on the far bank, we came upon a little clearing on firmer ground and this was covered with hundreds of large sea shells, Jack had heard that the aborigines in the north indulged in a sort of clam-bake now and

continued page 26.

North Queensland Orchid Safari. continued.

then, and we concluded that this terribly isolated spot must have seen plenty of action in the past. As we rowed back we disturbed thousands of flying foxes which had rested in the mangroves. They did not go far though, and soon came to rest again. I will never forget watching these large bats landing. With incredible deftness they alight midst the small branches of the mangroves, which already seem to be crowded out with dozens of their own kind, and they alight in an upside down position! The realisation that these wierd creatures can perform this same feat, with the same precision, in utter darkeness by use of their inbuilt "radar" seems almost too much. We returned the boat to the owner. He wouldn't make a charge for it, so later we bought him a casket ticket (Queensland State Lottery ticket) - It won $20. 00!

On the way back to Mossman we stopped to have a look at the dozens of large plants of Dendrobium teretifolium var. fasciculatum growing on tea-trees on a swamp right beside the road. These trees were very tall, straight and slender and they had been blown over by a cyclone, I imagine, for they were lying over at all angles in a heap like giant fiddle-sticks, making climbing easy. This was just as well because the water in the swamp was about four feet deep, something I did not know until after an unfortunate experience. I had jumped onto a sawn off section of a huge tree trunk before I realised the thing was actually afloat. Furthermore, my weight did not sink it to the bottom and some very frantic footwork ensued. All I could clutch were twiggy branches which certainly were not going to hold my weight once the log got from underfoot - something it seemed bent on doing. Jack was on high ground by the roadside and he was plainly very much amused by the proceedings. He has a warped sense of humour to be sure, Finally I manouvered my unstable craft over to a tree and safety. In this swamp on the tea-trees we also found Luisia teretifolia, an orchid which looks rather like a terete Vanda in growth. Conditions here are warm and humid and rainfall is high.

Over the Daintree River we could see dense tropical rain forest, the home of many unusual species, some of which are not found south of this point. A new road was being cut through this forest and no doubt some interesting things would be seen there if we could make it. Unfortunately the rain was so persistent that, with regrets, we had to pass it up. Looking back now, if we had any misfortune on this trip at all, then surely this was it. Back in Mossman we had a little time to look the place over before turning in early to prepare ourselves for the following day. Obviously Mossman is a prosperous little town. It has plenty of large shops and an all-over clean and neat appearance. A few miles out is the mighty Mossman Gorge and high mountain ranges almost encircle the town, making for it a very beautiful setting indeed.

At one time on the ranges behind Hartley's creek there grew countless thousands of Dendrobium bigibbum var. superbum sub. var compatcum. We decided to have a look for these, especially since we had encountered so little luck with finding the normal form of Dendrobium bigibbum var. superbum. The range is about two or three miles from the road across very flat country supporting stunted tea-trees. We noticed several Dendrobium canaliculatum, and growing right on the little track we were following were several plants of Nervilia holochila. In a gully to the side was a whole colony of a Lilium species (Eucharis ambonica) each with a single, very large round leaf on a stem about twelve inches long. The gully led right on up into the range and here the orchids began to appear in greater numbers. Dendrobium discolor with quite long, but very slender pseudobulbs was everywhere. Also there was quite a bit of Dendrobium teretifolium var. fasciculatum. This form found in the ranges seems far superior to the lowland one which grows over swamps. The flowers are much larger and are borne on longer spikes, and the colour is a much cleaner white with the red markings at the bases of the segments brighter.

We had climbed steadily for about two hours and had scanned over dozens of likely rock faces without success. In fact we were beginning to despair of ever finding a "compactum" when at last we found the first one. It was only a small seedling but unmistakably it was the real thing, and it was growing on the butt of a tree! Before long we found a small group of about twenty plants, in flower and growing on rock, but in an otherwise rather unlikely looking place, which probably is all that has saved them from the collectors. A couple of other mature plants were later observed, and like the seedling, they were on trees. I was surprised at this for I had always imagined "compactum" to be strictly a lithophyte. Well, we had found "compactum" and for both of us, another long held wish had come true, but what a poor showing for the amount of country we had so thoroughly searched. It seems from our own experience and from what others have told us, that the "compactums" could almost be said to be extinct in all the accessible places. What a regrettable loss, those whole cliff faces covered with beautiful purple flowers.

Jack was tiring a little and so decided to take it easy looking for Phaius australis, which is supposed to grow in little soaks in the area, while I set off for higher ground. In almost every rock crevice, sometimes with practically no soil, grew our native "African Violet" (Baea hygroscopica). This plant has no tubers and just how it survives the long dry spells is a mystery to me. The leaves can wither and dry off and the plant might look dead, but a shower of rain brings forther new growth and so it goes. The leaves are covered with dense white 'fur' and

continued page 27.

North Queensland Orchid Safari. Continued

the flowers are remarkably similar to the common single purple Saintpaulia. A large healthy plant in flower is quite showy.
Higher now, I was way above the "compactum" line - it grows only between about 1,000 - 2,000 feet elevation. The range is very steep (I estimated it was at least 45°) and the timber here is sparse. A tufted grass grows aubundantly and foot-ball sized rocks are loosely set into the ground everywhere. I remember asking myself on several occasions whether I was not just a bit crazy. Sure there is supposed to be Dendrobium bairdianum at the top but . . . The tufts of grass have a surprisingly poor hold on mother earth and it is most disconcerting to have one pull out just when you are relying on it most, and especially so if at the same time your feet dislodge a rock and you hear it go bounding and crashing down for hundreds of feet until out of ear shot. I'm interested in orchids so I carried on. I was almost at the top now and I began looking on every iron bark tree I came to. Sure enough at last I found Dendrobium bairdianum . most plants were very small but ever so many had seed pods. The orchid is seldom found in any quantity and so it was that I saw only one to three plants to a tree, and then not by any means on every tree. It seems to choose high spots on hard-to-climb trees and since even a small fall or slip here would mean a non-stop ticket to the bottom of the range I could take no chances. It was quite some time before I was able to study a plant closely. The plants obviously have a hard life, for on some I could count up to eight pseudobulbs all still seedling size, (about 1" high) and not improving a scrap, year after year. Still these are the conditions this species chooses, and probably a wet week or two at the right time would put on a large growth on every plant. For the grower: - they are exposed to almost full sun for most of the day, and to every wind that blows. They are very dry most of the time but perhaps they get dew at night over the drought periods. Temperatures are intermediate with cool to cold nights. The only other orchids here were a few Oberonia muelleriana , the leaves a pale, dull, orange yellow with exposure, and Dendrobium teretifolium var. fasciculatum which grew only on the rock faces at this altitude. I had thought it was more or less a lowland plant and I certainly was surprised to see it so high.

I had a rest before starting back. The climb really had been worth while. With no trees in the way I had magnificent sweeping views of miles and miles of coastline as far as the eye could see in either direction, and besides, I knew again the satisfaction of finding one of our rare orchids in the wilds. Mentally uplifted and physically revived it was now time to start back. Way down below I could see several gullies. Jack would be in one of these but the problem was which one. I went along the top of the range and then struck off over the side where I hoped would be about right, taking care to line myself up with a tree wherever possible so as not to fall too far if I slipped. Going down is more dangerous than going up and besides one can see everything then as well. By some miracle I came down in the right gully and found Jack easily. We gaspingly exchanged experiences - he had found no Phaius australis - and then we carried on down the gully which gradually developed into a small rocky ravine before finally leading out onto the flat country again.
Orchid-wise that was the end of the Hartley's Creek episode, but it was by no means the end for us. We both managed to tangle with the north's stinging tree (a Laportea sp.). On numerous occasions I had brushed with our local "gympie-tree" but while that one is severe enough, the sting is of short duration and usually one can feel only a warm sensation by the time one gets home. Now this is most definitely not the case with the northern one. A couple of hours later we were back in the car and within another hour we were in Cairns. Jack's sting was so severe that he had to have treatment at the local ambulance station. There is very little that can be done with it though and we both had a very restless night. For some two or three months later the sting was still activated every time the affected area was wet. We were told that bad encounters with this tree have caused people to go crazy for a time. In any case Jack and I were left with a new respect for the north's "Gympie-Tree"
Cairns is a thriving township and its very wide streets, trees and parks give the appearance of being well planned. We spent a day or two looking over the sights. Cairns has a few large commercial orchid establishments and we spent a bit of time at these too. We also renewed a few old acquaintances, poor souls who, like ourselves, have been afflicted with the 'orchid bug". However, Cairns is not much good for native orchid hunting. All we saw were plants of Dendrobium teretifolium var. fasciculatum growing quite naturally on a few roadside trees by the waterfront, only a few hundred yards from the heart of the town. This was not good enough for us. We had to be moving again.
The next port of call was Atherton, where we were to meet again a very good friend, the Rev. Ronald Collins. An avid orchid collector and a very keen species man, he was to accompany us on all our trips on the Tablelands, and no doubt without his help we would not have found half the orchids we did find in our limited time. The Atherton Tablelands extend roughly one hundred and fifty miles north and south and are fifty miles wide at best. Now almost all of this is given

continued page 28.

THE AUSTRALASIAN NATIVE ORCHID SOCIETY
STATEMENT OF RECEIPTS AND PAYMENTS
GENERAL ACCOUNT

	1967/68	1966/67		1967/68	1966/67
To Membership Subscriptions	$ 483.90	$ 506.30	By Rent for Meeting		$ 4.00
To Bank Interest	41.12	59.42	By Printing & Stationery	71.56	49.92
To Donations	10.00	40.00	By Donation N. S. W. Orchid Society	-	14.00
To Sundry Income	3.00	1.55	By Insurance	8.44	8.16
			By Petty Cash Expenditure incl. Postage	48.47	53.87
			By Prizes	4.00	26.20
			By Advertising	48.00	-
			By Excess of receipts over payments	367.55	451.12
	$538.02	$607.27		$538.02	$607.27

PUBLICATION FUND ACCOUNT

To Members Subscriptions	487.50	507.50	By Printing etc. (vol. 2 no. 8 to no. 10)	483.56	714.54
To Donations	38.15	96.07	By Printing check list	-	12.66
To Sundry Sales	82.48	81.37	By Folders	27.28	-
To Binding and Sale of Bound "Orchadians"	339.60	368.25	By Binding Charges	148,25	91. 35.
To Excess of Payments over Receipts	366.47		By Back Issues	595.40	136.94
			By Petty Cash Expenditure & Postage	46.51	15.92
			By Typing	13.20	
			By Excess of Receipts over Payments		81.78
	1314.20	1053.19		1314.20	1053.19

RESEARCH FUND

To Balance carried forward from previous year	888.60	1494.65	By Expenses in connection with Sarcanthinae publication		
To Sales of "Sarcanthinae" publication	759.00	7.00	Typing	-	9.90
			Lithography	-	411.40
			Printing & associated costs	410.50	191.75
			Folders	44.97	
			Commission	50.00	
			Postage	11.22	
			Advertising	22.50	
			Balance carried forward	1108.41	888.60
	$1647.60	$1501.65		$1647.60	$1501.65

E. MARYGOLD
Hon. Treasurer

I have examined the books of the Australasian Native Orchid Society and report that the above Statement of Receipts and Payments is in accordance with such books.

R. A. PRATT
Chartered Accountants.

E. GORDON
President.

STATEMENT OF FUNDS

		1967/68		1966/67
Balance at Bank at 30th June		$1823.64		$1602.75
Comprising				
Balance on Research Fund		1108.41		888.60
Credit in General Fund	1722.15		1404.60	
Debit in Publication Fund	1056.92	715.23	690.45	714.15
Available Funds		$1823.64		$1602.75

North Queensland Orchid Safari. continued

over to grazing lands and agriculture. Only pockets of scrub remain, and one can only wonder at the vast tract of forest it must have once been, and the vast wealth of orchids once contained therein. The Tablelands are of volcanic origin and four extinct craters remain. Two of these now form the very beautiful lakes Barrine and Eachma, and a third, simply called 'The Crater' is a wondrous spectacle indeed. All three should be on the itinerary of any Tablelands tourist. The crater is perhaps only about one hundred yards across, with sheer cliff all round, two hundred feet to the water, and the water is supposed to be a further four hundred feet deep! - a gigantic hole in the solid rock. The Barron River rises near here and at this point one can jump across it. I collected stones from the river bed to throw into the Crater. The others laughed at this but I noticed that they helped throw them in. Really though, it is a fascinating experience to stand on the brink and watch the stone going down and down.

continued Vol. 3. No. 3.

NATIONAL HERBARIU
LIBRARY
ROYAL BOTANIC GARD
STH. YARRA, S.E.1, V
28 MAY 1969

THE ORCHADIAN

MAY, 1969. PRICE: 30 cents PAGE 29.
VOL. 3. NO. 3.

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon.Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: C.K. Ingram
R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murdoch

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical

THE ORCHADIAN - CONSOLIDATED INDEX.

Copies of the consolidated index to Volumes 1 & 2 are now available from your Society. This Index is a complete list of every orchid referred to within the first two volumes of The Orchadian. A separate section also lists every plate published in Volumes 1 & 2.
The consolidated index is available in two forms:-

(a) 13¼" x 8.$^{1}/8$" wide, 10 pp. for general reference including correct spelling. Type the same size as The Orchadian.
(b) 10¼" x 8.$^{1}/8$" wide, 10 pp., for binding in Volume 2 of The Orchadian. With reduced size type size.

Due to the size of this and future Indexes it has been decided not to issue the consolidated index free to members as occurred with the index to Vol. 1. To supply the edition free would necessarily reduce by one issue the number of Orchadians produced. Cost to members for both editions is 40 cents. Forward your orders to the Hon. Secretary at the Society's postal address.

THE ORCHADIAN - BINDING.

Bound copies of Vol. 2, are now available from The Society at a cost of $7.50 each, including consolidated index. Your copies of Vol. 2 can be bound for you at a cost of $3.50 each. They will of course, be bound in the condition in which they are received with the consolidated index bound in the back. Send your copies by registered post to the Society (including your cheque and full return address details) and your bound volume will be returned by certified mail.

QUESTIONS AND ANSWERS.

If there is anything you want to know regarding native orchids write to the Editor at the Society's postal address and we will have an expert in the particular field, try to answer your query.
The questions below have been recently received and are answered by Stephen Clemesha.
Question. My plants of Sarcochilus fitzgeraldii have recently developed rot patches on their leaves. What would cause this and can I prevent it? P. Fulton, Eastwood.
Answer. This species is very sensitive to snail baits which can cause the patches you describe. Care should be taken to avoid contact between such baits and plants.

Question. I recently collected 2 plants of Diuris punctata, do these plants multiply very quickly? J. Austin, Warrawee.
Answer. Most species of Diuris including D. punctata increase slowly and erratically. Some years you should get slight increases but most years your numbers are unlikely to alter.

A REDUCTION OF PTEROSTYLIS TENICAUDA Kranzlin TO A SYNONYM OF PTEROSTYLIS OPHIOGLOSSA R.Br. var. OPHIOGLOSSA Clemesha.

In 1928 Fritz Kranzlin examined specimens of a Pterostylis labelled P. neocaledonica and realised that these specimens differed from that species and all others then known from New Caledonia in having the ends of the lateral sepals extending into filiform caudae. Kranzlin, a well known botanist, had completed extensive monographs and line drawings of orchids from most parts of the world (but particularly Europe and North America) and though well over 80 years of age, he prepared a Latin description of these plants, followed by a discussion in German, because he considered them to be a new species.

The type specimen, along with most of A. U. Daniker's collections remained at the Botanical Museum of the University of Zurich, to whom I extend my thanks for sending a photograph of the specimens. A translation of the description follows. The author wishes to thank Mrs. E. Blackmore for assistance in the German translation.

Pterostylis tenicauda Kranzlin, Viertel Jahrsscrift Naturforsch Gesellschaft Zurich (Vol. 73 - 74.) 1928 - 29.

'Tuber not seen, total plant with solitary flower 10 - 14 cm. high; leaves 3 - 5, 2 - 3.5 cm. long, 10 - 12 mm. wide, broad ovate-oblong or elliptic, obtuse or shortly acute; on short petioles which are sheathing at the base and 4 mm. long. Scape very slender, devoid of stem bracts or with one small one near the base. Floral bract oblong lanceolate, 10 mm. long and 2.5 mm. wide. Pedicel not longer than the ovary and scarcely equal to it. Dorsal sepal 3 cm. long, long acute and incurved; lateral sepals connate for less than half their length and produced into rather long thin caudae. Petals narrow linear, falcate, incurved and difficult to separate from the dorsal sepal. Labellum 1.3 - 1.5 cm. long and 2 mm. wide, linear, soft, not very thick and with a curved two lobed apex; appendage partly upright, linear and supplied with penicillate tufts. Column with 2 linear oblong appendages. Flowering in June. New Caledonia; On the flat high ridges on the west side of the Ingumbi above Pembo (4-vi- 1925. A. U. Daniker no. 1729.) where scattered in rather loose colonies in grassy patches in the forest meadows. Same district 28-v- 1925. A. U. Daniker no. 1729."

The plant is similar to P. neocaledonica Schlechter but differs from it and all others in the unusually placed hair-fine points of the lateral sepals. This may of course be a characteristic of doubtful value as these sepal ends break off very easily which can influence the diagnosis. The labellum and column are very different from those of P. neocaledonica provided I understand Schlechter's description correctly. On the whole, the flowers are about a third larger than that species. The stems on 4 out of 7 are completely without leaves. In the other 3 there is a tiny bract just above the basal rosette and from there to the floral bract the stem is without leaves. In this it differs from Pterostylis bureauviana Schlechter, which flowers in October while P. neocaledonica flowers in January and P. tenicauda flowers in May and June.

Since Kranzlin's description was published, a number of Australian species of Pterostylis have been recorded from New Caledonia. They are P. nutans var. nutans, P. curta R.Br., P. acuminata var. acuminata and P. ophioglossa var. ophioglossa.

The description of P. tenicauda agrees fairly well with that of P. ophioglossa var. ophioglossa which also has "a curved two lobed apex to the labellum". Because of this, a copy of the type specimen of the former was obtained and the two proved identical. Because of the long priority of P. ophioglossa, P. tenicauda must now be regarded as a synonym.

The name tenicauda means thin tails and refers to the caudate lateral sepals. Kranzlin cannot have been familiar with the genus or he would have know this characteristic was shared by many other species and in many it is more pronounced. Little difficulty is experienced in the genus through the sepal ends breaking off.

As no Australian species of Pterostylis had been recorded from New Caledonia at the time Kranzlin published his description and that island is a considerable distance from the Australian coast he assumed he was dealing with a plant endemic to New Caledonia and so compared it with the others then known from there.

The copy of the type specimen of P. tenicauda is now in the National Herbarium of N.S.W.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120.

THE EDITOR.

Dear Sir, I have seen several mentions of "fertilizing" and "manuring" in articles in The Orchadian. I am not clear as to the difference in these, if any, and I would be glad if you would publish this letter in the hope that some of my fellow members will write an article or articles that will clear this matter up for me.

Signed - J. P. Marsh.

North Queensland Orchid Safari. cont. from Vol. 3. No. 2.

John Young.

It takes an incredibly long time to reach the water. On the track into the crater we found the minute Bulbophyllum macphersonii on a fallen twig and several others were seen on the tree trunks. On the shaded, moist banks beside the track were literally thousands of Corybas abellianus. A few were in flower and they looked rather like a smaller version of our local Corybas aconitiflorus. Bulbophyllum aurantiacum also was noted here. Conditions were cool, moist and fairly shady. In open country now by a small brook we found an amazing variety of orchid species. These included Dendrobium monophyllum, Rhinerrhiza divitiflora, Cymbidium suave, Cymbidium madidum syn. C. iridifolium) and the terrestrials Liparis habenarina, Pterostylis hildae, Acianthus fornicatus, Spiculaea irritabilis and Thelymitra aristata, all of which occur in southern Queensland. The Thelymitra aristata have truly beautiful violet-blue flowers and they make a wonderful show in nature. They reputedly do not take kindly to cultivation though. All the Thelymitra species with which I am familiar seem to close their flowers at night and even on very dull days and then open them fully when the sun is shining brightly, hence the common name "sun orchids". In addition to those noted, and all in the same gully, we saw the following:- Dendrobium agrostophyllum, Dendrobium bairdianum, Phreatia baileyana, Bulbophyllum johnsonii, and the terrestrials Dipodium ensifolium, Corybas abellianus and Nervillia discolor. In similar type country on a bank by the Atherton - Herberton road, we saw countless Dipodium ensifolium and a single plant in flower of Diuris punctata var. alba. Now the terrestrials, Pterostylis, Spiculaea, Corybas and Acianthus were growing on sheltered, moist, often mossy, fairly shady and cool banks of the stream. The soil probably would not dry out even in the dry season. The other terrestrials, i.e. Liparis, Thelymitra, Dipodium, Nervillia and Diuris were in much more open conditions. They were receiving perhaps three quarter sunlight or even more and the soil was sandy or even gravelly and exceptionally well drained. (It rained the whole time we were there but the ground was in no way soggy.) The dry season on the Tablelands is not very pronounced, but I imagine that the soil could become quite dry at times during the orchids' rest period. Temperatures here are in the intermediate range. All of the others, i.e. the epiphytes, were in about three quarters sunlight and in close proximity to the stream - many were overhanging it. There was not much time left now before darkness fell, but we made a dash into the scrub on the Herberton Range. We followed a timber hauler's track and in a matter of minutes saw countless Dendrobium adae and Dendrobium agrostophyllum. Many of these were down on fallen timber. Cutters are still active in the area and it is a very great pity that such plants are not saved. Also in the same sorry plight we saw many of Bulbophyllum wadsworthii and Phreatia crassiuscula. We found a Taeniophyllum sp. (probably T. flavum) in flower and though the flower was quite small and insignificant, and pale creamish yellow in colour, it was nevertheless very interesting to me. I had not seen a Taeniophyllum in flower before. The Australian Taeniophyllums are quite leafless like the Chiloschistas we had found in the mangroves near Mossman, but the Taeniophyllums are much smaller and finer, (only about two inches across their little root systems) requiring a very practiced eye to detect them in the half light of the forest. There was a bit of Bulbophyllum johnsonii about and also we saw a large clump of a Liparis sp. (epiphytic) which we could not identify. It looked like L. cuneilabris or L. bracteata but unfortunately there are two species of Liparis with which none of us were familiar, i.e. L. nugentae and L. fleckeri. Perhaps these last two have similar plant structure to the first two and so our list of possibilities grew. The plant's identity must remain a mystery. Anyway it was almost dark and we were beginning to feel the cold so we went home.

Natural conditions for this last group of orchids are cool, moist, high humidity and half shade. Back at the Rev. Collins' home we all had a hot shower, donned dry clothes and sat down to a hot dinner prepared by his gracious wife. A wonderfully tolerant woman, she seems to have a sort of sympathetic kink for orchid enthusiasts. After being soaked to the skin all day in the cool highland atmosphere of the tablelands, I think that on that night nothing on this earth could have been more welcome than the treatment Jack and I received. Afterwards we talked long into the night - about orchids - and then retired to fortify ourselves for the fray on the morrow. Next day the rain had eased. Now it was something more than fog and yet finer than any drizzle - a strange phenomenon I had not seen elsewhere before. It was in fact, something like the mist from some glasshouse spray line nozzles, and it persisted the whole day. It was sufficient to keep the forests dripping wet and after an hour or so we were soaked to the skin again!

"Gentle Annie" is a very steep section of the Palmerston Highway between Millaa Millaa and Ravenshoe which in olden times rang with the crack of whips, the bellowing of straining bullocks and the terrifying oaths of the drivers hauling out timber. From here the view is supposed to be very good but the weather had cut visibility to a couple of hundred yards and we saw nothing. However, right by the roadside in just a few minutes we had found Mobilabium hamatum, Plectorrhiza brevilabris (syn. Saccolabium brevilabre), Bulbophyllum macphersonii (in flower) and Sarcochilus falcatus, also in flower and very similar to one of our local forms. Incidentally quite recently a person brought to me a tiny plant in flower for identification, claiming quite positively that it came from the Bellthorpe area. The plant was typical Bulbophyllum macphersonii and since the person had

continued page 32.

North Queensland Orchid Safari. cont.

not at any time collected native orchids in the north, there seems little chance of confusion or that the story might not be true. I feel sure that this would be a new recording for south Queensland. Conditions on "Gentle Annie": - cool, moist, high humidity and about half sunlight. I doubt very much whether there would ever be any prolonged dry periods.

We then entered the scrub again somewhere near Ravenshoe, and again the variety of species was bewildering. There was some fallen timber here too, with half dead orchids everywhere. So plentiful were the orchids in fact that in some places it was impossible to look in *any* direction, even up or down, without seeing at least one plant. Here we noted *Dendrobium adae*, *D. agrostophyllum*, *D. ruppianum* forma *magnificum* (syn. *D. fusiforme* forma *magnifica*), *D. teretifolium* var. *fasciculatum*, *D. tetragonum* var. *giganteum*, *D. gracilicaule* (much rarer in the north than down here) and the rare *D. carrii* which in this area at least seems to grow only in the topmost branches of the highest trees. Amongst the root system of a fallen *D. carrii* I found a tiny *Bulbophyllum* species which we later identified as *B. lilianae*, a rare little species which, after its first recording in 1917, was not found again for some forty years. Other *Bulbophyllums* here include *B. wadsworthii* (very common on tree trunks), *B. evasum* (which certainly lived up to its name for it was most difficult to find) and *B. johnsonii* which is literally everywhere. By this time we had seen *B. johnsonii* on rocks, trees (branches and trunks) and even all over the pseudobulbs of *Dendrobium ruppianum*! Besides it seems remarkably tolerant of a wide variety of climatical conditions, especially regarding light and moisture. In the *Phreatia* spp. we saw *P. crassiuscula* and *P. baileyana* (small fleshy plants with terete or semi - terete leaves and most unlike their big brother *Phreatia robusta*). *Sarcochilus falcatus* and *Mobilabium hamatum* were here too, also *Cadetia taylori* and more *Taeniophyllums* (probably the same species as that found on the previous day). Another epiphytic *Liparis* species was found which definitely was different from the one seen on the previous day, and this one was in flower. Still we could not identify the plant but it would be another of those four "possibilities" mentioned earlier. The only terrestrial we saw was a *Calanthe triplicata* (syn *C. veratrifolia*), an orchid with a very wide distribution extending to China. An interesting fern we saw here (*Asplenium* sp.) looked rather like our common "bird's nest fern" (*Asplenium nidus*) but the leaves were no more than one inch wide but still about two feet in length. A python we passed on the way up the mountainside was, incredibly it seemed to me, still in exactly the same position when we came back down again at least half an hour later. On top of the highest crest we stumbled onto an old wartime trigonometrical sign. It was quite over-grown with jungle and it was a surprise to see signs of man in what had appeared to be virgin jungle. On the spur of the moment I thought we had found a wrecked plane, for the top of the thing looked like tail fins. The altitude here would probably be a little over 4,000' and the air is bracingly cool. Mist twirls in almost continually and humidity must often be 90% and over. The orchids grow in about half light though perhaps the *Dendrobium carrii* in the top branches receives about three quarters light. I imagine that the cool growing *Odontoglossums* would thrive under the conditions here.

Next morning we reorganised the car and reluctantly bade farewell to our charming hosts. A simple "thank you" seemed terribly inadequate for all they had done for us and yet somehow they seemed to make it seem quite sufficient. We made our way down to the lowlands once more, via the Gilles Highway. This was closed for most of each day while workmen blasted huge granite boulders, some twenty feet in diameter from the road. The ceaseless rain had caused dozens of land slides and worse still, in many parts a good half of the road had slid down the mountainside. But now the rain had stopped and the sky was clear. This seemed to happen every time we decided to move on to our next stopping place and, once there, down would come the rain again. Anyway the clear sky enabled us to take in some truly magnificent scenery.

We stopped in Babinda, where we made acquaintance with an old identity of the town and a very knowledgeable man concerning our native orchids, a Mr. Jack Wilkie. We went for five minutes and stayed for two hours! Mr. Wilkie, in his earlier life, discovered quite an impressive number of our native orchids and *Bulbophyllum wilkianum*, (now *B. newportii*), *Dendrobium wilkianum*, and *Taeniophyllum wilkianum* are a few which are named in his honour. Not very far from the town, in the foothills of Queensland's highest mountain, Bartle Frere, we found a wonderful variety of species. Of course it had started to rain again, but there were odd looking orchids in every direction so we did not mind so much. In many parts, whole banks were covered with a very beautiful *Lycopodium* fern looking like piles of fine green lace. In other places the sandy forest floor was carpeted with a small creeping *Selaginella* sp. fern - a close relative to the much grander *Lycopodium* species. Amongst the *Selaginella* in sandy loam we found one of our native "jewel orchids" *Hetaeria oblongifolia*, though the foliage of this species is just plain fresh green.

continued page 33.

North Queensland Orchid Safari. cont.

Also here in like conditions we saw plenty of Malaxis latifolia and a couple of Geodorum pictum which seemed to be of a slightly better form than the ones we see around Brisbane. A couple of "maiden hair" (Adiantum) species here were particularly lovely. We searched hard and long for Corymborchis veratrifolia and the extremely rare Phaius pictus but could find neither. In the meantime though we saw Eria fitzalani and one or the other of Eria queenslandica and E. eriaeoides. Perhaps we saw both, for the plants are practically identical. Bulbophyllum baileyi was ever present, on trees, on rocks, with epiphytic fern, and even on the ground where it had fallen from the trees. It has the largest flowers of all the Australian species of Bulbophyllum. Dendrobium lichenastrum in various leaf forms was almost as common and seemingly just as adaptable as B. baileyi. The most common form by far here was Dendrobium lichenastrum var. prenticei (syns. Dendrobium prenticei and Bulbophyllum prenticei). Another very common orchid was Bulbophyllum radicans (syn. B. cilioglossum). In lesser numbers we saw Pholidota pallida (syn. P. imbricata), Podochilus australiensis (mostly lithophytic), Dendrobium baileyi and D. toressae. This latter species we found carpeting a large vertical rock face and it is a most difficult orchid to detect. The leaves are like grains of wheat and a reddish suffusion makes them blend in with the rock on which they are growing. Perhaps we would not have seen them were it not for the flowers. These appear singly at intervals of two or three inches among the tiny creeping plants and are about one quarter of an inch or more across - quite large really when compared with the plant that produces them. Careful scrutiny will reveal that the flowers emerge from the leaf axil and not the rhizome as in Bulbophyllum spp. We saw a seedling of what could only be Dendrobium luteocilium, but could find no large plant. Robiquetia tierneyana (syn. Saccolabium tierneyanum) was fairly plentiful. It is a large growing species about the size of a strap leaf Vanda and it has the strange habit of sometimes dangling from its host tree by just one or two roots reminescent of our local "tangle foot", Plectorrhiza tridentata, but ever so much larger. In similar numbers we saw Thrixspermum platystachys. This has large spidery, creamy, short-lived flowers borne in succession on a peculiar and distinctive flattened spike, Not so common was Saccolabium subluteum and Taeniophyllum wilkianum (syn. T. cymbiforme). This Taeniophyllum was different from the one found on the Atherton Tablelands and was even more minute. It grows on fine twigs of branches overhanging water. Camarotis keffordii was also here and there were a few Oberonia palmicola (syn. O. titania). Very occasionally we could see high up in the largest trees an odd specimen of the now rare "Queensland tassel fern" (Lycopodium sp.) and there was another very beautiful epiphytic fern here too which I have only heard referred to as the "Johnstone River maiden hair". I do not know to what genus it belongs but it certainly is not a "maiden hair". It looks more like a Pteris sp. We saw an occasional ribbon fern (Ophioglossum sp.)as well. In fact, a whole host of interesting plants grow in wild profusion here and the following are a few I recall:- on the rocks, a couple of varieties of creeping Polypodium type ferns; a Peperomia sp.; at least two varieties of Hoya rambling over the more exposed rocks and trees; about three different varieties of tree ferns, one of which is a very tall slender grower which can attain a height of at least forty feet; slender stately palms; and the umbrella trees (Brassaia actinophylla). Huge vines entwine the trunks of most trees right up into the top branches. These are a wonderful aid to climbing. Also at times these vines hang in big loops from a tree making an excellent swing for the young-at-heart or Tarzan types.

Of course there are plenty of things to make life uncomfortable too. We stayed here for two days and it rained all the time. Apart from anything else this seems to make the leeches even more active than they would normally be. Then there are the stinging nettles, and the wild raspberries. These raspberries are just like unkept rose bushes - but, by the acre! And the loya cane comes in about three varieties. One is quite smooth and harmless but the biggest one is like an outsize form of our local one with viciously barbed runners reaching out to more than twenty feet from the main stem, which is itself densely covered with very fine spines. Even the ribs on the back of the palm-like leaves are furnished with barbs - altogether a fearsome looking plant. Strangely enough it seems to be the only thing within reach when one starts slipping down a steep bank, or crashes through a false floor or decaying debris to the ground some six feet or so beneath. If by chance there does not happen to be a stem close handy to the scene then certainly there will be one of the vicious runners present to rip across one's face or arm. Such is the lot of the orchid hunter!

Despite all this though, it is a truly beautiful place. The stream was cool, fast flowing and crystal clear, and it cascaded over the granite boulders which range from the size of a football to the size of a house, forming glittering waterfalls and deep calm swimming holes - and all this is set in the luxuriant bright green jungle. Here the climate is warm and the humidity high. Rainfall would be near to the highest in the state. All orchids mentioned in this area grow in close proximity to the water and most epiphytes overhang it. But even in Babinda township, conditions are so right that moss grows all over the garden shrubs and in Mr. Wilkie's trees several native orchids

continued page 34.

North Queensland Orchid Safari. cont.

have appeared and matured quite naturally, from seed blown in from the scrubs.
Time was running out now and we had to make tracks for home, non-stop, except where necessary of course. By the roadside at times we would see a beautiful deep yellow Hibiscus sp. In our travels we had seen two other Hibiscus species beside this one. One was white with a dark centre and the other was a red-pink. All were beautiful but none were as large as those commonly grown in gardens. Also in the tea-trees we could see quite a few Dendrobium canaliculatum as we sped along. No doubt had we stopped we would have seen many more for fortunately this beautiful little native is one of our orchids which is still fairly common. And so on this happy note I come to the end of our safari. To summarise, we had covered a distance of over 3,000 miles, we had found in nature over seventy orchid species (including one new one for Australia), we had learned so very much of their requirements regarding cultivation and we had so many wonderful experiences indelibly imprinted in our minds - and all this in just three short weeks. To anyone who loves nature and who has the opportunity of such a trip as I have tried to describe in this series, might I offer this advice:- Do go along!

Acknowledgements:- Many thanks to Ian Walters for his help in naming some of the native orchids, and to David Hockings for his help in supplying some of the non orchidaceous plant names.

John Young, 7 Sutton Street, Redcliffe. QLD. 4020.

SOME RESEARCH CONCERNING LEACHING OF MATERIALS FROM PLANTS. David L. Jones.

While doing some research I came across a series of articles which while they do not refer to Australian conditions could be equally applied here. As they may be of interest to readers I will pass on some of the relevant points and a few areas of application which occurred to me, although the prospects of explanation are enormous.

The articles concern leaching of materials from plants. An increasing number of experiments is proving the considerable importance of leaching from the above-ground parts of plants such as leaves, stems, bark and fruit. Up to the time of writing the articles, 125 plant species had been studied. The range of materials leached includes not only mineral nutrients, but also organic compounds such as amino acids, carbohydrates and organic acids.

The importance of these findings lies in the understanding of plant community development and adaptation. It can be seen that the leachates from different species will differ and so will affect the type and growth of species found associated with them. This could be of importance in the distribution of terrestrial species. One which comes to mind is Pterostylis tenuissima Nich. which appears to be associated with the tea tree Leptospermum lanigerum under which it seems to be always found. This does not appear to be an environmental factor entirely because many similar areas nearby, lacking Leptospermum lanigerum also lack Pterostylis tenuissima. Similarly, toxic substances may be leached from plants which serves to control species development underneath them. Although this has not been explored in Australia, overseas workers have reported that members of the family Juglandaceae have this control on the plants which share their ecosystem with them.

Also in this theoretical discussion these effects on epiphytic species can be considered. The leaching of toxic substances could control the development of epiphytes on their bark. Similarly, the enrichment by leachates could account for some trees being more suitable hosts than others. All sorts of intermediate relations are possible and at the extreme end of the scale there exists the strict ecological balance whereby in nature the epiphyte becomes dependant on one host tree alone for its successful life cycle. In Australia we may have a good example of this in Dendrobium falcorostrum and its favoured attachment on the beech (Nothofagus moorei). From this type of discussion it can be seen that perhaps these orchids do not lead such a tough, poverty stricken life as has been expounded in the past, deriving their nutrients from the rain, dust in the air and various animal waste products. We know that orchid roots do not possess the essential enzymes to break down organic matter and release its contents and such leaching from the "host", would obviate their need. Hand in hand with this is the obvious need for adequate fertilizers to be used in culture when the plants leachate source is removed. Why such a practice as fertilizing native orchids with artificial products should have been treated and indeed still treated with such suspicion and mystery is quite perplexing. More so when the food requirements of other families of plants used by man as food are well looked after even under the same conditions as our orchids are grown.

continued page 35.

Some Research Concerning Leaching of Materials from Plants. cont.

Nutrient cycles are of extreme importance in sclerophyll communities of southern Australia where a tight nutrient balance exists, but, because of drought adaptations leaching is probably small. Here epiphytes are of minor importance, but the effect on terrestrials may be significant. In the northern ecology with the thinner cuticles of the less droughty humid areas such leaching may play a major role in the community development and distribution of various species.

References:- H. B. Tukey and J. A. Macklenburg, American Journal of Botany, 51, (7) 737-742(1964).
H. B. Tukey, S. H. Wittwer, H. B. Tukey, Radioisotopes in Scientific Research, IV(1958)
J. V. Morgan and H. B. Tukey, Plant Physiology, 39, 4. 590-593 (1964).

Davis L. Jones, 7 Yonga Road, Balwyn. Victoria. 3103.

A NEW STATUS FOR A NORTH QUEENSLAND SARCOCHILUS (ORCHIDACEAE). S. C. Clemesha.

Sarcochilus roseus (Clemesha) Clemesha stat. nov.

Basionym: Sarcochilus ceciliae F. Muell., ssp. roseus Clemesha. The Orchadian, 2, 7, 92 (April 1967). Illustr. Dockrill, l. c. Dockrill, Australasian Sarcanthinae, 19, plate 39. (Sept. 1967).

Plants, small, lithophytic, growing singly or in tufts of up to 6. Stem very short, roots few 3.5 mm. thick. Leaves 4 - 8, canaliculate, cymbiform, erect, unspotted, 6 cm. long, 4 mm. broad and 2 mm. thick. Raceme erect, bracts 2 - 4 small and apiculate. Flowers 10-20, campanulate, bright rose pink, 6 - 7 mm. across. Dorsal sepal slightly smaller, petals nearly erect and tri-lobate but the mid-lobe with no free portion. Lateral lobes erect, 3 mm. long. Free portion 1.5 mm. long, oblong at base, becoming narrower and falcate above. Inside glabrous, marked with prominent red veins. Lid-lobe 2.2 mm. long, connate with lateral lobes for its entire length. Upper margin transverse and slightly emarginate in the centre. Disc slightly pubescent, tri-calliate. Calli club-shaped and conspicuous. Middle callus larger, bi-lobed and lower than the lateral ones. Column 2 mm. high with a 2 mm. foot. Stigma small, oblong, ovate; anther cap anteriorly apiculate. Pollen masses almost round.

Distribution: Known to occur in at least 4 different locations of the Atherton and nearby Tablelands of northern Queensland, e.g. Tully Falls and Tinaroo. It doubtlessly will be recorded in other areas of this tableland region.

Flowering period: Late Spring - early Summer.

The author at the time of preparation of the description of S. ceciliae ssp. roseus was of the opinion that the plant was entitled to specific rank and prepared the paper along those lines and consequently a full Latin and English description was prepared and published and the title "A New Species of Sarcochilus from North Queensland" was accidentally printed as such. The title should have read "A New Sub-Species of Sarcochilus from North Queensland". However, as A. W. Dockrill who at that time was preparing his "Australasian Sarcanthinae" and therefore was far more familiar with this group of orchids than the author, considered the plant to be worthy of varietal or sub-specific rank, the author published it under the latter status.

In the 1967 flowering season, numerous colonies of both S. ceciliae and S. roseus were examined by the author who then was more than satisfied that his former opinion was justified.

S. roseus is not acceptable as a varietal form or sub-species because it is consistently taxonomically different to its nearest allies - S. hillii (F. Muell.) F. Muell., S. tricalliatus (Rupp) Rupp, and S. ceciliae F. Muell and any intermediate forms are quite unknown.

A. W. Dockrill sent specimens of S. ceciliae to the author which he considered to bear characteristics of S. roseus. However, these specimens merely had a broader labellum mid-lobe than is common for S. ceciliae and there was no suggestion of this being connate with the lateral lobes and it did not bear any other characteristics of S. roseus. Consequently these specimens merely represent an example of plants of S. ceciliae which are a little different to normal.

As S. roseus is quite distinct from its three close allies and these are regarded as valid species, the author is unable to see any justification for treating S. roseus as anything but a valid species. S. fitzgeraldii F. Muell., and S. hartmannii F. Muell. are more closely allied than S. ceciliae and S. roseus and vary considerably. At their closest point they look quite similar but as intermediate forms appear to be absent, the specific status of the two is accepted. The gap between S. ceciliae and S. roseus is much greater than this and it is only the smaller size which prevented S. roseus from being recognised as a species. It shows very little variation, even in colour - a point which varies considerably in S. ceciliae, as does the calli development, as well as the width of the mid-lobe of the labellum mentioned earlier. However, these variations are quite normal in a species and in no way form any approach to S. roseus.

continued page 36.

A New Status For A North Queensland Sarcochilus (Orchidaceae). cont.

A table of the differences between the two species is set out below.

S. roseus	S. ceciliae
Plant growing singly or slowly building up into small colonies if the centre of the plant is damaged.	Plant forming large colonies within a few years.
Leaves shorter, broader and thicker than those of S. ceciliae and unspotted.	Leaves bearing conspicuous raised wart like spots except when grown in heavy shade.
Flowering commencing 3 or more weeks earlier (when grown side by side with S. ceciliae in cultivation).	
Raceme more erect and more robust than that of S. ceciliae and bearing 2 - 4 bracts.	Raceme bearing 4 - 9 or even more bracts.
Flowers not glandular exteriorly, larger, thicker textured and deeper coloured than those of S. ceciliae.	Flowers inconspicuously glandular exteriorly.
Dorsal sepal oblong.	Dorsal sepal oblong lanceolate.
Petals 1.8 mm. broad, and more erect and spreading than those of S. ceciliae.	Petals 3 mm. broad.
Labellum. Lateral lobes (exteriorly) oblong at base and becoming narrower and falcate above, 1/3 their distance higher than those of S. ceciliae. Free portion 1.5 mm. long, interior conspicuously veined with red and not pubescent.	Labellum. Lateral lobes similar at base but only slightly and evenly tapered with an obtuse point. Free portion 4 mm. long, interior white, either devoid of veins or bearing few and finely pubescent.
Mid-lobe slightly emarginate in centre, connate with the lateral lobes for its entire length.	Mid-lobe round on upper margin with the highest portion in the centre, free for almost its entire length and broad spathulate.
Disc prominently tricalliate and slightly pubescent.	Disc calli much smaller than those of S. roseus, frequently barely visible and not properly formed. Disc densely pubescent.
Column 2 mm. high, stigma oblong ovate.	Column 1.5 mm. high. Stigma broadly oblong below and acuminate above.
Anther cap with a membraneous apiculate point less than 0.5 mm. long on the anterior.	Anther cap with a fleshy rod-like projection almost 1 mm. long on the anterior.

A good comparison between these two species can be made from A. W. Dockrill's plates in his excellent publication "Australasian Sarcanthinae".

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120

THE ORCHADIAN - TOO TECHNICAL?

S.C. Clemesha

One often hears the charge that The Orchadian is too technical - some members appear to think that your Council ruthlessly throws out all but a select few non-technical articles received. This is not the case, as all the non-technical articles received have been published, or are in the course of preparation for publication. The problem is that so few are received, and most of the more regular authors are perhaps the most interested and as their interest has grown they become more technical in their approach.

While members complain of The Orchadian being too technical, one rarely hears that what they do want. Many capable of writing excellent articles on a wide range of topics, flatly refuse to do so and claim they don't know enough, are no good at writing articles, or that if they did, someone would disagree with them (not that this matters as I now disagree with some of my own statements made in earlier articles). A few errors in spelling and English expression are of no real importance and are easily fixed in editing. However, if we cannot persuade you to write some non-technical articles it is surely not too much to ask that you list some topics (general and specific) you would like to see in The Orchadian.

Regrettably I have almost certainly wasted my time in writing the above, as this appeal like all the others is sure to meet with little, if any, respons . No doubt members will still complain that The Orchadian is too technical, but neglect to add that the reason is, that they have not taken any action to alter this situation.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120

SOME INTERESTING CORRESPONDENCE - CONTINUED

R.C. Nash

Further discussion on my finds mentioned in my letter published in The Orchadian, p. 128. Vol. 2. No. 10., January 1968., and the reply to it by Stephen Clemesha.

Firstly, I would like to comment on Thelymitra cyanea (Thelymitra venosa var. cyanea (Lindl.) Hatch). From studies that I have made since discovering this plant in N.S.W., I would like to say that I think this plant is a natural hybrid between the Thelymitra species T. venosa and T. pauciflora. On a further visit to the area where I discovered Thelymitra cyanea, I find that Thelymitra pauciflora also grows there. Thelymitra venosa also grows in the same general area. Thelymitra cyanea contains features of both apparent parents, it has T. venosa's petals, stigma and pollinia. The column is about twice the length of T. venosa's, while the top is hooded, but has the same projecting mid-lobe termination below the hood and between the side lobes, which are straight and point forward and a little upward, ending in a serrated manner. The flowers are smaller. The flowers are smaller than T. venosa but more are carried on the spike, up to six. The whole outward appearance of the plant is not unlike a robust form of T. pauciflora, even to the leaf and outside colouring of the flowers. There is no cleft in the hood of the column but it is suggested and the edges are slightly indented. It seems to be self pollinating. Further study will support or deny my theory. Although both the supposed parent plants occur in the same area here in South Australia, no Thelymitra cyanea have as yet been recorded. While on a visit to New Zealand in 1966, I found a strange form of Thelymitra that could be included in the above discussion, this plant was not unlike Thelymitra venosa except that it had the column shape of Thelymitra pauciflora minus the hair tufts.

Now to the Thelymitra circumsepta - rectecta question. I agree colour is not significant in this problem. To digress a little, I would like to say colour in several of our blue flowered and to some extent pink flowered Thelymitra species is determined by soil chemistry and can be altered experimentally. I have found this to be true with Caladenia carnea too. As I will briefly touch upon this question of colour later, I would like to say at this point, we have a lot to learn about the importance of colour in the flowers of our orchids. In some species it is of no importance genetically, in others it could be of major importance.

Sine writing the letter telling you of my finds in the Blue Mountains, concerning Thelymitra circumsepta, I have studied carefully the "wet" and dried specimens I have, again visited the above area and found one flowering plant, but failed to obtain a good photograph, and received a fresh flowering spike of Thelymitra retecta from Tasmania. I am still of the opinion that the two species are but one, or one is a variant of the other. I now have many illustrations to refer to and find that it is possible to trace most features, in steps, from one type to the other. The only outstanding differences are, the fourth lobe in Thelymitra circumsepta and the odd shape of the ovary in Thelymitra retecta. The ovary of Thelymitra retecta has a prominent hump at the top of the rear, while the front is flat and a little sunken, just as though the missing roundness of the front had been pushed through the ovary to come out at the top rear. The only other marked difference I can pick at present is the placing of the hair tufts on the side lobes, those on the Thelymitra retecta seem to be held in closer to the column. Nicholl's illustration of Thelymitra retecta could be an extreme variant or the plant I had was an extreme variant. The column tops of the flowers on the spike I received were more like Nicholl's illustration 'e' for Thelymitra circumsepta. I would like to see more of both species and hope to do so next summer. For those people interested in the three species of Thelymitra that I have been discussing above, I would suggest that they visit the swampy areas between Sydney and the Victorian border and beyond, especially the near coastal mountains and perhaps these plants may be found to be more common than is now thought. Material linking Thelymitra circumsepta and T. retecta may be found in this area.

I would now like to comment on the Dipodium issue. I would not like to say that Dipodium punctatum var. hamiltonianum is larger than Dipodium punctatum (the pink type), as I have seen some very large flowered specimens of the latter plant growing beside the main south coast road in N.S.W. Dipodium punctatum var. hamiltonianum's flowers do look larger, mostly because the spike does not carry so many flowers and they are not crowded, the sepals and petals are long and narrow and these factors would tend to amplify the size. On comparing both forms of these flowers from the same or adjacent areas, those of the yellow flowered variety are a little larger. The characteristics of Dipodium punctatum var. hamiltonianum from the A.C.T. and the Warrumbungle Ranges are very constant which suggests to my mind that this form may be older and more fixed than the pink flowered and very variable Dipodium punctatum. If the yellow flowered plant is constant over its whole range, then this may be a very argument to give it species rank. Here again, colour could be used to boost the argument if it is an important generic factor.

Owing to the drought of the last year I was not able to locate any of the white form of Dipodium punctatum in the Mt. Lofty Ranges, during this last summer.

I would like to see the opinions of other interested people, in the problems of the above discussion. Please do not think about it, write it down and send it in so that we all may read your views.

R.C. Nash, 77 Coromandel Parade, Blackwood, South Australia. 5051.

DIPODIUM PANDANUM F. M. Bail.

N. Howcroft

Dipodium pandanum may possibly be synonymous with Dipodium pictum (Lindl.) Rchb. f. of Malaya, however there is insufficient material to support this to date outside of some photographs and a drawing. Refer to discussion later in this article.

D. pandanum - A variable vandaceous epiphyte which may also be terrestrial or lithophytic at times. Stem length may be up to 5 m. or more; stem diameter averages 2 - 3 cm. Leaves light green, linear, lanceolate or ensiform, alternate and with overlapping bases ± 43cm. long x 5 - 7 cm. wide at basal section, and 3.6 - 3.8 cm. mid-section on adult plants. Basal section partly sheathing when undisturbed by root development. Leaf costate having a prominent mid-rib and a prominent parallel nerve on either side ventrally of the leaf, these are accompanied by weaker nerves also running parallel. Cross section of leaves at base are "V" shape, at mid. section of leaves usually ± flat and thin. Old leaves are shed on the basal portion of plants leaving a herring-bone pattern of bracts. Roots short and succulent, often reposing in the old leaf bracts encasing the parent nodes; the plant is brittle and often relies on its twining habit to keep it upright and clasped to its support.

Inflorescence more or less 18 - 25 cm. long, rhachis ± erect, 36 cm. or more long, scape ± 0.5 cm. diameter. Flower 4 cm. diameter, petals and sepals flat, partly transparent, light creamy white on the dorsal sides, blotched with maroon which appears lightly on the face of the petals and sepals. Labellum light pink to white at the apex with maroon and white parallel lines on mid-lobe. Sometimes with a maroon spot at the apex on the ventral side.

Column a light yellow from clinandrium to half its length; has a faint sweet scent. Flowers 10 - 20, small sheathing bracts, white with brown margins at base, 4.5 x 3 mm., ventrally situated on petiole base. Petiole and ovary 2.7 x 0.25 cm. white.

Dorsal sepal 2 x 0.25 - 0.7 cm. wide, flat lanceolate. Lateral sepals 2 x 0.25 - 0.65 cm. wide, lanceolate slightly oblique, flat; sometimes drooping a little below horizontal when freshly opened. Petals shape and dimensions as for sepals 1.8 x 0.2 - 0.55 cm. wide ± flat. Labellum ± 1.8 x 0.25 - 0.7 cm. wide; trilobed tightly apressed to column; mid-lobe oblanceolate when flattened out or freshly opened, laterally decurved with age. 5 distinct ridges of fine dense hair running from apex of the mid-lobe to its base adjoining a raised triangular portion forming the base of the entire labellum. Ridges separated by deep maroon to purple marks which become pink or white, blending with the dense hairs at the apex where the ridges meet together. Lateral lobes 0.35 cm. long, apex rounded, unequal sided, tapering off to the base of labellum, tightly apressed to column laterally. Base of labellum has a raised triangular shaped section covered with fine white hairs and forms the base for all lobes.

Column 0.85 - 0.9 x 0.35 cm. short and broad, smooth dorsal and lateral side. Ventrally depressed at base merging to a slightly raised pubescent central section ± 0.2 cm. from the base of stigma to its tip. The column lacks spur and foot with only slight bulge at the base of the labellum. Stigma ± a small triangle with crescentic base and deep; rostellum cleft barely distinguishable as a thin ridge where retinaculum reposes. The clinandrium is shallow; anther about 0.15 x 0.3 x 0.15 cm., ovate anterior wise, partly ovate, 0.05 cm. x 0.05 cm. ± laterally, and ventrally rostate. Pollinia 2, oblong - ovate and partly cleft into two unequally divided units, yellow and firm, slightly waxy surface. Attached to the side of stipes by an elastic membrane at the tip of the stipes; the base of the stipes are united at the top of the retinaculum.

Distribution: D. pandanum has been found in the Madang and Wewak areas, Kassam Pass and Chimbu regions in the eastern highlands, the coastal mountain regions around Lae, Bulolo, Garaina, Popondetta and also reported to be seen in other parts of Papua and the Territory of New Guinea and possibly extends into Malaya.

Altitudinal ranges appear to extend from sea level to 5,000' approximately.

Flowering period: Approximately August to December, reported for other months, but no substantial evidence available to support this.

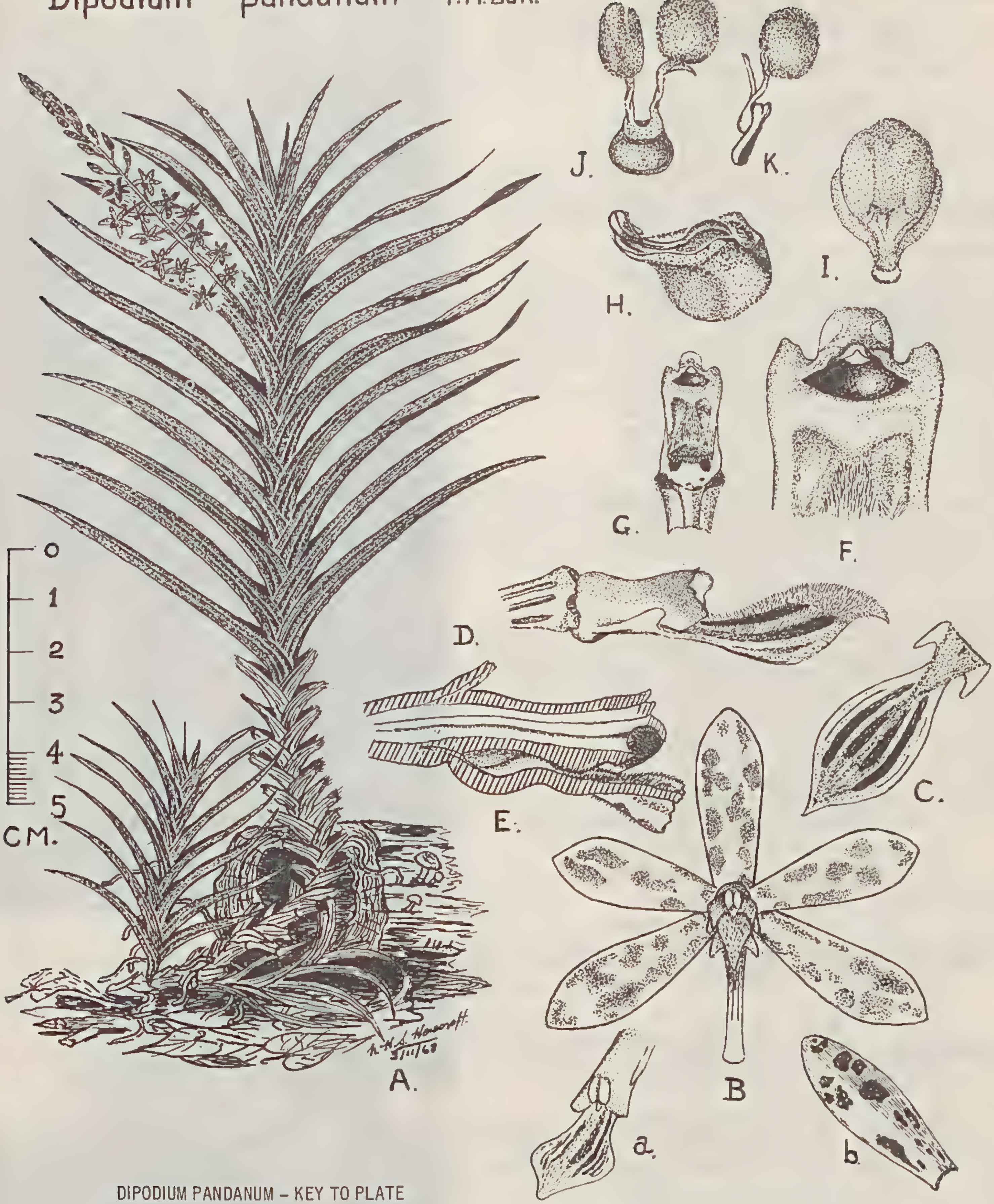
In Bulolo and Wau, the most common places to find this orchid appear to be in areas close to the edge of mid-mountain hardwood associations which occur around 2,500' altitudes; although as mentioned in the distribution section it is found at 5,000' altitude, very little description of its habitat is available at this level.

Here at Bulolo, the plant prefers a semi-shaded to sunny position where the understory of the forest or scrub may be more open than usual. Small specimens have been found growing on rotting tree trunks and in Imperata grass under dense shade in an eight year old Hoop pine (Araucaria cunninghamiana) plantation at 4,500' altitude; this area receives an estimated 120 inches of rainfall per annum; officially the maximum here is 100 inches per annum, average about 65 inches.

Plants in the mid-mountain forest types enjoy humid conditions and are sometimes subjected to short dry spells; the forest floor is abundantly littered with leaves and twigs among which young and old pieces of this orchid thrive; usually there are vines and saplings which assist the plants progress

continued page 40.

Dipodium pandanum F.M.Bail.



DIPODIUM PANDANUM – KEY TO PLATE

A. Adult flowering plant reduced 1/7 indicated scale, Specimen No. 1.
a. Labellum and column of 2 nd. flowering specimen X 2 ± to scale, freshly opened.
B. Flower to scale X 2 of specimen No. 1, 3 days after opening.
b. Back view of dorsal sepal, to scale X 2½.
C. Labellum, dorsal view flattened, to scale X 2½.
E. Cross section of column and labellum, to scale X 5.
F. Column, ventral view, showing anther and stigma, to scale X 10.
G. Ventral features of column stripped of perianth, to scale X 3.
H. Lateral view of anther, showing pollinia inside, to scale X 11½.
I. Another with pollen and discid disc. Anterior view, to scale X 11½.
J. Pollinia, anterior and lateral view, to scale X 15.
K. Lateral view of viscid disc, to scale X 15.

Dipodium pandanum F.M. Bail. cont.

upwards to sunlight. The plants are sometimes smashed by falling limbs and trees, the broken pieces sprout new leaders and as actively growing individuals, seek new support. This orchid appears to favour trees with smooth bark such as Terminalia, Sloanea and Elaeocarpus sp. for support, but in cultivation will accept rough bark trees such as the Raintree. In cultivation the plant prefers heavy to semi-shade and will accept Frangipani, Cassia sp. and as previously mentioned, Raintrees as hosts. It may be grown with a stake support in a pot of charcoal and leaf mould.

Comments: As mentioned in the description, this plant is thought to be synonymous with Dipodium pictum (Lindl.) Rchb. f. by the present author, Professor Holttum's description of the Asian species - D. pictum in his "Orchids of Malaya", suggests a slightly larger flower than D. pandanum, i.e. "pedicel and ovary about 2.5 cm. long, bracts short; sepals and petals similar to about 2.5 by 0.9 cm., pale yellowish, with crimson blotches on the back showing faintly in front; lateral sepals drooping only a little below the horizontal;" This latter piece is also true of the New Guinea species but is not demonstrated clearly in illustration "B", of an old flower. Age also alters the shape of D. pandanum's labellum which is flat and not laterally decurved when fresh. It must also be kept in mind that this may also be local variation and that elsewhere, others may not develop in the same way.
Holttum's description of the labellum of D. pictum (Lindl.) Rchb. f., also closely fits that of D. pandanum, i.e. "lip as long as sepals and petals, its base narrow, in contact with the short broad column, with short, narrow side-lobes close to the sides of the column, the blade widening and ending in a broad point, the upper surface striped with purple, hairy in the apical half (hairs long and white) and on a median line which bifurcates towards the base; column short and broad, hollow and hairy at the base in front."
Illustration "E" of D. pandanum shows the hairs advance more towards the base of the labellum compared to that in Holttum's Fig. 148.
Illustration "G". p. 514. Vol. 1. "Orchids of Malaya". This orchid should adapt itself well to cultivation as it is a hardy species in its natural habitat and its general requirements, i.e. compost and support are easily supplied. The flowers are attractive and last for several weeks on the plant.

References: Flora of Malaya, Vol. 1. "Orchids of Malaya", p.p. 513 - 514. by R.E. Holttum.
Plant Life in Malaya, p.p. 133 - 135. Fig. 28a. by R.E. Holttum.

Acknowledgements: I wish to acknowledge with grateful thanks all who have assisted in various ways in the preparation of this article. Special thanks to Mrs. Maria Szent-Ivany, Bishop Museum, Wau, for her advice and guidance on technical illustrations. Mr. A.W. Dockrill, Lae, for his encouragement, advice and confirmation of present nomenclature. Mrs. A. Millar, Lae, for reference literature. Mr. C. Levo, my field assistant, and Mr. A.G. Gloynes, Forest Dept., Bulolo, for the plant specimens given to me at various times. Last and not least, to my wife for putting up with my late attendance at meals and for her encouragement.

PHOTOGRAPHS. Top: D. pandanum growing in Klinkii pine scrub. Bulolo, Oct. 1968. Alt. 2,700'.
Bottom: D. pandanum taken from logging area, Bulolo, Oct. 1968. Alt. 3,000'.

N. Howcroft, Forest Office, Bulolo. T.P.N.G.

THE ORCHADIAN

JULY, 1969 PRICE: 30 cents PAGE 41.
VOL. 3. NO. 4.

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: E.G. Gordon
Hon. Secretary: H. Jay
Asst.Hon. Sec.: A. Reeves
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: C.K. Ingram, R.G. Napier
Editor: M.J. Corrigan
Asst.Editor: S.C. Clemesha
Immediate Past President: W.H. Murd

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
13 AUG 1969

ANNUAL GENERAL MEETING - 27th SEPTEMBER, 1969.

The Annual General Meeting of The Australasian Native Orchid Society will be held in room 210, Y.W.C.A., Liverpool Street, Sydney, at 2.30 p.m. All members should attend this important meeting of their Society.

ANNUAL ELECTIONS.

Financial members are advised that the closing date for nominations will be the 27th August, 1969. Date of election will be the 25th September, 1969. Nomination forms will be forwarded to financial members as prescribed by the Constitution and its Amendments, dated April, 1965.

THE ORCHADIAN - BINDING.

Bound copies of volumes 1 and 2, complete with indexes are now available from your Society: Volume 1 costing $6.60 and Volume 2 at $7.50 each. Your copies of volume 2 can be bound for you at a cost of $3.50 each. Send copies for binding by registered post to the Society (including your cheque and full return address details) and your bound volume will be returned by certified mail.

The Consolidated Index to Volume 2 is available at a cost of 40 cents per copy.

MEMBERSHIP RENEWAL.

Members are reminded that annual subscriptions to The Australasian Native Orchid Society fall due on the 1st July each year. Post your POSTAL ORDER or CHEQUE ONLY, NOT CASH, to the Society, at P.O. Box C106 Clarence Street, N.S.W. 2000. Ordinary membership is $2.50 per annum.

AUSTRALIAN NATIVE ORCHID BOOKS - SOON TO BE AVAILABLE.

The following books are in the final stages of production by various printers and will be released by September 1969.

"Australian Indigenous Orchids" by A.W. Dockrill. Published by S.G.A.P., pp. 872, 30 colour plates and approximately 300 line drawings. This outstanding work will cover all epiphytic orchids of Australia as well as all tropical terrestrial orchids. Approximate cost $18.00, a real bargain!

"The Orchids of New South Wales" by The Rev. H.M.R. Rupp. Issued from the National Herbarium, Sydney, as part of the Flora of N.S.W. A facsimile reprint with up-to-date addendum. Published by the N.S.W. Government Printer. Rumoured price is under $2.00!

"A Guide to Australian Native Orchids" by Roger B. Bedford. Published by Angus & Robertson, pp. 200, 7 colour plates, 81 line drawings. This work details every epiphytic orchid described. Price approximately $7.00.

Orchid lovers start saving the cents, these books will be a must on every book shelf.

DENDROBIUM SCHNEIDERAE F.M. Bail. AND ITS VARIETY MAJOR Rupp.

Dendrobium schneiderae F.M. Bail. var. major Rupp, Qld. Nat. 11, pt. 1:3 (Jan. 1939) was described as differing from var. schneiderae in the following ways - (1) plant more robust, (2) raceme considerably longer and bearing more flowers, though these individually were considered to be the same as those of var. schneiderae.

The var. major was recorded from the Eungella Range Qld., whereas var. schneiderae was known principally from areas in and near the Macpherson Range in southern Queensland and northern N.S.W. As this is a gap of more than 600 miles, it cannot be regarded as insignificant, particularly as both varieties have only a relatively small distribution. Since that time recordings of var. schneiderae have not significantly extended its known range and var. major has not been recorded beyond the Eungella Range, but is now known to be well established there.

As very little of var. major was seen over the years and the few differences stated by Rupp seemed too few to justify its separation, it first fell into suspicion and finally appeared as a synonym in A.W. Dockrill's "A Checklist of the Orchidaceous Plants of North Queensland", published by the Nth. Qld. Nat. Club, in May 1966. At that time I fully supported that action as I believed, as did most people, that var. major merely represented a well grown plant of var. schneiderae and the best cultivated plants had almost corresponded with it in all points but raceme length.

Last year I received plants from the Eungella Range which certainly were more robust than my plants of D. schneiderae var. schneiderae and the old flower racemes were proof of Rupp's second point. Racemes produced this year equalled in length those produced last year. I was however, very surprised when I compared flowers of the two varieties. A table of the differences follows.

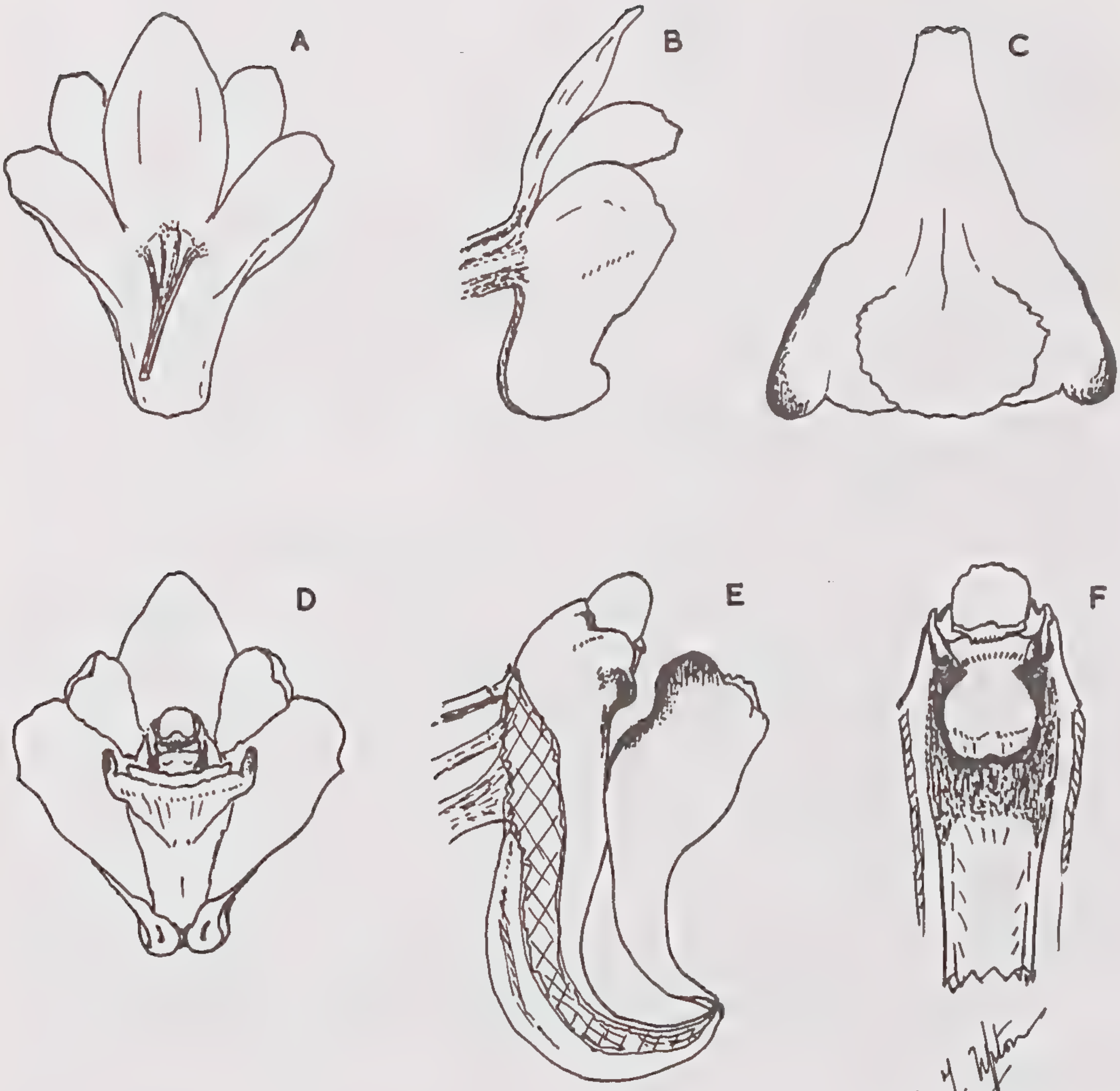
var. schneiderae	var. major
Flowers greenish-yellow, dorsal sepal, petals basal part of upper margin of lateral sepals and stigma outlined in red.	Flowers more yellow and all red markings on the petals and sepals absent, though stigma marking and that on upper margin of the lateral labellum lobes present as in var. schneiderae.
Flowers with shorter segments than var. major and more widely expanding.	Dorsal sepal more pointed.
Labellum lateral lobes much better developed than those of var. major and about three times as large.	
Labellum disc with faint red markings and clearly separated from the lamina all around and contracting into a keel extending towards the labellum base, to within a quarter of the labellum length.	Labellum disc more yellow, devoid of the red markings present in var. schneiderae and separated from the lamina, except at the base, where it merges with it, keel absent.
	Column longer and more slender.

Whilst some of these differences are not of great significance they do seem quite constant, however the details of the labellum clearly separate the two varieties and I feel that both are valid and should be recognised. However, they are not sufficient to separate two species. I feel that var. major should on no account be raised to specific rank. It forms an interesting lead-up to var. schneiderae, giving the impression of a flower of the var. schneiderae that is not quite finished. Lacking some of the red markings that so beautifully finish that variety, and also in having a less complete labellum. However it presents its flowers better and has more of them, which more than compensates. The point which formed the basis of Rupp's name for the variety.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120.

6th WORLD ORCHID CONFERENCE - 12TH to 18TH SEPTEMBER, 1969.

Members are reminded that the 6th W.O.C. is being held in Sydney on the above dates. The Orchid Show will be held in an enormous marquee measuring 190' x 190'. This marquee will be erected in Sydney Domain, immediately adjacent to the Botanic Gardens. The site is only a five minute stroll from the Conference Centre at the Wentworth Hotel. Information regarding registration and show schedule may be obtained from 6th World Orchid Conference, G.P.O. Box 475, Sydney, 2001.



Walter T. Upton
MAY 1969

Dendrobium schneiderae var. major Rupp

KEY TO DRAWING

Flower drawn is from a raceme of Stephen Clemesha's plant and all 10 flowers on the raceme were constant.

A.	Flower from back	5X
B.	Flower from side	5X
C.	Labellum pressed flat	10X
D.	Flower from front	5X
E.	Column and labellum from side with sepals and petals removed	10X
F.	Column from front	10X

ORCHIDS AT GIP-GIP ROCKS

Marion Beek.

The Gip-Gip Rocks are situated in the south east of South Australia, roughly midway between Kingston and Desert Camp. The "rocks" are a group of huge ancient granite boulders, grouped together on their own, between low, hilly scrub. The most common vegetation consists of Banksia ornata, Melaleuca uncinata, Eucalyptus diversifolia, but what a wealth of native terrestrial orchids shelter between the rocks and under the low bushes. It is one of my favourite hunting grounds and over the years I have been there at different times. Let me tell you about it. The first orchids to appear in early autumn, when the ground is still warm and the temperature hot, are the flower stems of Eriochilus cucullatus. Their delicate white wings light up between the dead bracken and brown grass. Some weeks later, Leptoceras fimbriata follows, with small straight stems and lovely twin flowers, each with a beautiful fringed labellum and slender ear-like petals. Its very attractive oval leaves, green with red stripes, are much more numerous than its blooms. This is a fire lover and flowers abundantly after a bushfire. On a cold wet day in winter, the rocks look uninviting, like black shadows against a grey sky, but that did not deter us, for we knew that many treasures hide between them. Acianthus exsertus covers the ground with a thick mat of heart shaped leaves and many small, dark red flowers carried on slim stems. Acianthus reniformis grows in sheets, the flowers glistening with honey laden labella, too numerous to count. Carpets of Corybas diemenicus with frosty green leaves carrying buds like pale green shells lie amongst the whipstick mallees. Away from the rocks one finds clumps of Pterostylis robusta, short stocky plants with large green flowers, and P. hamiltonii with taller stems and white flowers striped with red. P. nana shyly hides away between thick undergrowth but P. vittata grows freely in small groups, their dull red nodding flowers very conspicuous.

A most colourful display awaits the visitor in spring. Caladenia carnea with rosy fingers is scattered all through the undergrowth. In low-lying, wet places are colourful clumps of Thelymitra antennifera. The slightly fragrant flowers on slim wiry stems are very striking with their column's dark brown, ear-like appendages set like a jewel in the centre of each golden chalice.

The many plants of Thelymitra aristata have a stately appearance, with sturdy leaves and long spikes of star-like flowers in all shades of blue, mauve and purple. One magnificent specimen was two feet high with twenty five flowers! Between the rocks are a few broad, oval leaves of Thelymitra fusco-lutea. This time unfortunately, without flowers, but looking at last year's dead flower stems I could very well imagine its interesting yellow, brown spotted blooms. Bright blue stars of Caladenia deformis are scattered like gems between the stones and a few solitary plants of Pterostylis barbata look most impressive with their long fluffy beards shivering in the light breeze!

In every little rock crevice in which the wind has swept about an inch of soil, are fascinating miniature gardens, where budding spikes of Pterostylis pusilla are growing up through lacy fronds of tiny rock ferns. In sheltered places away from the sun and wind, grows Diuris longifolia, its yellow brownish petals standing up like gay butterflies and Diuris maculata is very eye catching between the bracken. Three plants of Caladenia patersonii grow close together, with tall straight stems and graceful, white spidery flowers showing off beautifully against the dark rock behind it.

Caladenia dilatata and C. tesselata are represented by a few solitary plants, and many are the leek-like leaves of Microtis unifolia with a promise of future flower spikes in late summer.

Marion Beek.

PTEROSTYLIS NANA R. Br.

Three years ago I found a fine colony of this species west of Goolgowi in south western N.S.W. Since then I have found a very large colony of P.nana on a hill just west of Griffith, N.S.W. and last week located another isolated colony south of Ardlethan and near Moombooldool. I say "isolated", because the surrounding country seems barren of this little species. Several years ago my brother Peter and I found a small colony of P. nana near one of the crossings of Bindogandri Creek, between Parkes and Manildra and also here at Dripstone on our own property. The amazing influx of reports of findings of this formerly rare species (in N.S.W.) is very remarkable. It scarcely seems possible that this species should have remained unknown all these years, as so many competent enthusiasts have covered these areas in the past 100 years. What then is the answer?

G. W. Althofer, Dripstone, N.S.W. 2742.

ORCHIDS OF KING ISLAND.

Paul F. Barnett

King Island is situated in Bass Strait and is approximately forty miles long by sixteen miles wide. On a good day Victoria can be seen from the north of the island, and from the south, the outer islands of the north west of Tasmania. The highest point on the island is Mt. Stanley, some 400 feet high and this is the point on which we live.

The island is best divided into three divisions as far as orchids are concerned. Coastal dunes, behind which lie the sandy heaths, rising to clay-loam ridges deeply cut by some steep gullies. Let us begin with the coastal dunes. The most common species here is Acianthus reniformis. Acianthus exsertus and Caladenia latifolia would run a close second as far as numbers go. Caladenia menziesii is often seen in the leaf stage, but I have not yet seen one in flower. Pterostylis nutans can be seen in some places right down to the salt spray area which is quite common, but I would think that this plant could be classed as a form of the more typical species growing on the ridges.

Pterostylis pedunculata also seems to have two forms, one growing on the dunes and one inland, whilst the flowers are similar the plants are nothing alike. Diuris longifolia is also found here and after a fire had cleared scrub from the dunes one year, we found small plants of Corybas dilatatus growing in full sun. Here, along a creek bank, only 200 yards from the sea we found Chiloglottis cornuta.

It is on the sandy heaths that our greatest number of species are to be found. It is remarkable how orchids seem to delight in being different from their descriptions in books and being in places where they should not be. Thelymitra retecta is a very good example. The late John Firth described this species as "stem slender and somewhat flexuose" while the plants which we have found here are the most robust of all the Thelymitra spp. with a measurement of nearly 1¼" through a cross section where the leaf and stem come through the ground. These plants do not grow much over 24" high, though one plant I saw had 27, 1" flowers, not all open at once, though each flower only lasts one or two days, some not opening at all, but still self pollinating and forming a capsule. I have since found T. retecta growing on my own farm in a wet soak and still the same robust type plant. It was in this same area of wet heath that I found one of the rarest of orchids, Burnettia cuneata and there were literally thousands of them, (this last year we could not find one, even though last year's stems and seed capsules were still there). Many plants were over 6" high with up to 6 flowers, sometimes 3 open at one time and contrary to written descriptions the flowers stayed open for up to 14 days and were only 400 yards from the rolling sea. In my opinion, a single flower of Burnettia cuneata is one of the most beautiful of all our orchids. A lovely luminous white, sometimes flushed or streaked with pink on the inside, brownish red on the outside, and often over 1" across. Four species of Calochilus are found on the heaths. One of them, C. robertsonii growing on rather drier parts, while C. paludosus and the two similar species C. campestris and C. saprophyticus grew where the ground is water-logged for some months. I can only tell the difference between these latter species by the number of bracts on the stem, as usually C. campestris has lost its leaf also, but can be recognised by having only two stem bracts where C. saprophyticus has up to five. Two species of Prasophyllum are found on the plains, tiny P. archeri on the drier rises and P. australe where the ground is a little wetter. We found a third species, P. nigricans growing out of the top of a small tree fern in a fern gully. After a bush fire has swept an area it isn't any trouble to find Lyperanthus nigricans. Why is this so? Surely the heat of the fire must trigger some reaction in the newly formed tuber which makes it flower the following year, hard to believe, but there must be some explanation. Flowering Burnettia cuneata may also be influenced by heat?

Gastrodia sesamoides is quite common on the plains but rarely over 1' high compared to up to 3' high in the more forested areas. Cryptostylis subulata grows on the plains and usually has one to five flowers but when it grows in shaded swamps on the tops of dead butts of tassel cord rush (Restie tetraphylla). I have counted up to 16 flowers twisting up to the light. The genus Thelymitra is represented by T. ixioides and its variety truncata, T. aristata, T. venosa and its forms, right up to the variety cyanea (the author refers to the reduction of T. cyanea to a variety of T. venosa, of which J.H. Willis in "A Handbook To Plants In Victoria", pp.352, says "In Trans. Roy. Soc. N.Z. 79:391 (1952), E.D. Hatch has reduced T. cyanea to a variety of T. venosa; the only difference, viz. direction and torsion of column-appendages, certainly seems a very trifling one."), T. flexuosa and one salmon pink which we are not sure of yet, which I considered to be T. rubra, but which may be T. carnea. This spring we hope to find them again and make sure. Caladenia dilatata and an albino of this species have been found. C. carnea, as changeable as the weather, whilst a surprising fact is that the common spider orchid, C. patersonii, has not as yet been found.

Microtis unifolia would be found in all areas, in fact it would be hard to find a place where it does not grow. The same could almost be said of Eriochilus cucullatus.

continued page 46.

Orchids of King Island. cont.

The greenhoods as a genus are the most common orchid found here, growing on the higher rises and sides of gullies.
The stately Pterostylis foliata, the bearded P. barbata, many flowered P. longifolia, P. cucullata hiding under its bract and the two previously mentioned, P. pedunculata and P. nutans. Others found in these areas include species of Thelymitra, Corybas, Chiloglottis and Caladenia carnea as previously mentioned.
A fellow field naturalist who lives in the north east corner of the island fenced in a small area of natural heath scrub alongside his home and a few years later discovered the only plant of Glossodia major found here. It has flowered year after year but for some unknown reason, will not make more than one new tuber each year, so that the number remains only one, although a search over a number of years has failed to locate another plant.

Paul F. Barnett, P.B. 111, Currie, King Island. via. Melbourne, Vic. 7256.

SOME CORRESPONDENCE ON DIPODIUM PUNCTATUM VAR. HAMILTONIANUM.

N. Howcroft

With reference to articles mentioning Dipodium punctatum var. hamiltonianum in "The Genera Dipodium, Galeola and Their Allies", The Orchadian pp. 111-112, Vol. 2. No. 9, and pp. 129, Vol. 2. No. 10.
It will be of interest to your readers to learn that Dipodium punctatum var. hamiltonianum, or if you prefer, Dipodium hamiltonianum F.M. Bail., is not as rare as one is lead to believe. During the years 1957 to 1959, I discovered areas where this orchid grew in abundance. These areas are located in the Taroom and Theodore districts in Queensland.
The first area of around two acres in extent and probably more, was located on a stony ridge which formed a boundary between spotted gum (Eucalyptus maculata) and a mixture of Acacia species, including Brigalow and Rosewood. The ground cover was very light probably due to bushfire and the dry nature of the area. I was able, at the time, to collect some twenty or more spikes to take home, which was a forest survey camp on Stonecroft Station. At that time little thought was given, I admit, to preservation.
At a later date I was able to find many more areas of this orchid in flower and it appeared to favour three soil types which may be found to be variations of the other; basically a clay soil, (1) a red laterite with red clay, (2) grey clay soil with some alluvial mix, (3) sand with clay intrusions or vice versa.
In the latter I often found Caladenia caerulea and Calochilus campestris and sometimes Diuris maculata also.
I have never found the pink and spotted variants of Dipodium punctatum in the inland areas, only on the coastal strips and on the Whitsunday Islands. However, that does not mean that the orchid is not there. I understand it may occur here in New Guinea in the Trans-Fly area also. It seems to me that a great deal more study should be undertaken by active collectors to help overcome the confusion caused by geographic variations as I believe Dipodium punctatum var. hamiltonianum may be only an ecotype of the species and therefore should not be referred to as Dipodium hamiltonianum. This problem of races within orchid species is probably far greater than a lot of similar problems of provenance which arise in other types of plants. Here in New Guinea the altitudes, edaphic and weather conditions have apparently altered the habits, shape and colour of many orchids, or should I say the orchids have adapted to their environments to present us with a diversity of size, shape and colour in plants and flower, and with a headache when it comes to identifying them.
I forgot to mention that rainfall in the area where I found the Dipodiums averages 15" per annum, on an average.

N. Howcroft, Forest Office, Bulolo. T.P.N.G.

A METHOD FOR PROPAGATING TERRESTRIAL ORCHIDS.

David L. Jones.

A method of vegetative propagation has been developed by the author which has proved simple, and quite effective for some species of terrestrial orchids. The tuber is cut longitudinally into two, so as to split neatly the small dormant shoot present at its tip. The cut surfaces are then sealed by dipping into molten grafting mastic (beeswax) and the sections are potted up in coarse sand and allowed to develop normally.
The method is more suitable for some types of tubers than others. The smaller the area of the cut surface, the better, and for this reason forked or palmate tubers as found in many Diuris species are very suitable (see illustration). As many of the more desirable species of Diuris do not increase rapidly by vegetative reproduction this provides a means of increasing stocks without denuding the countryside over much. Other types of tubers give only fair results, but

continued page 47.

Method For Propagating Terrestrial Orchids. cont.

if this method were under carefully controlled conditions e.g. sterilisation, then results could be much more promising.

Pterostylis cut this way generally end up by one side dying, although on occasions it is successful for both halves. Under these conditions we find that the larger tuber fares better than the smaller one.

Cutting is done with something sharp - a new razor blade or preferably a scalpel with interchangeable blades. The blade should be first sterilised by passing it through a flame. The tuber should be washed clean or disinfected in hypochlorite solution first. As soon as possible after cutting, the exposed surfaces should be dipped into the molten grafting was which should be at the right temperature. If too hot, tuber damage will result. This can be easily tested, if you can dip your finger in it comfortably then it is all right. If the solution is too cold, a thick layer will set on the tuber which will be easily dislodged. If the seal is not complete, rapid dehydration of the tubers occurs. This was one of the early problems while we were casting around for the ideal sealant. Do not wait too long before planting as the tubers can shrink and the wax coating falls away. Water immediately after planting. Coarse sand by itself has been found to give the best growing medium in the post operative period. The plants may get a stunted hungry look above ground but below ground they generally do well. It is a good practice to pinch out any flower buds that appear as all energy should be directed to tuber development. Our results show that dormant tubers perform better than shooting tubers as the latter tend to dehydrate very easily no matter how well they are sealed.

This method can be used as a form of surgery to save damaged tubers. Accidents in repotting, or pests, sometimes damage a valuable tuber which later becomes infected and dies. If the damaged area is cut off cleanly and sealed with the wax, the tuber will generally survive.

Propagation by this method may also avert disaster for at least one very rare orchid - Diuris punctata var. albo-violavea. Numbers of this species left in nature are so few that it cannot be very far to its level of extinction - that period where there are insufficient genes left to avoid inbreeding depression. By building up the population vegetatively we can build up the gene pool physically, and also increase the probability of mutation to new genes which may help offset this crippling process.

We now want as many people as possible to try the method on a wide range of species and report their findings to The Society so that modifications etc. can be developed.

A list of species and results obtained is attached. Some of these reproduce readily by normal vegetative means and while the process is not necessary for their propagation they have been included for experimental interest.

YEAR	SPECIES	NUMBER CUT	NUMBER RECOVERED	TUBER SHAPE	PERFORMANCE
1963	Pterostylis nutans	8	12	Round	Fair
	Pterostylis concinna	6	7	Round	Poor
	Pterostylis pedunculata	10	8	Oblong	Poor
	Thelymitra pauciflora	5	10	Oblong	Good
1964	Diuris pedunculata	6	12	Oblong	Good
	Diuris aurea	2	4	Forked	Good
	Diuris palachila	2	3	Oblong	Good
	Diuris maculata	4	2	Oblong	Poor (Shooting)
	Thelymitra rubra	2	0	Oblong (Small)	Failure
	Thelymitra pauciflora	6	9	Oblong	Fair
	Thelymitra aristata	1	2	Oblong (Large)	Good
	Pterostylis pusilla	4	8	Round	Good
1965	Diuris aurea	2	4	Forked	Good
	Diuris punctata var. punctata	1	2	Palmate	Good
1966	Diuris aurea	2	4	Forked	Good
	Diuris punctata var. albo-violacea	2	4	Palmate	Good
	Diuris pedunculata	1	2	Forked	Good

David L. Jones, 7 Yonga Road, Balwyn, Vic.

CALADENIA FLAVA R. Br. - TWO INTRESTING FORMS.

F. Coate

I was recently handed a jam tin containing orchid speciments for identification and sloshing around in the bottom of the tin was a lovely pink Caladenia flava R. Br. As I had never previously seen or heard of this species I was very interested.

The lady who collected the specimen had no idea that it was in any way special or even where her companion had found it. She gave me the address of the gentleman who had taken them into the bush at Waroona and the following Sunday, October 13, my husband and I with another keen orchid enthusiast, Sister R. Lewin, set out for Waroona on a wild goose chase to see if we could find the area and another pink Caladenia flava.

Mr. Ross, formerly of the Forests Dept. directed us eleven miles into the Waroona Forests Reserve and when still about a mile from our destination Sister Lewin spotted a lovely white Caladenia flava. We immediately began to search the area.

The day was the hottest recorded for October and the March flies a ravening horde. We proceeded in a kind of wild ritual dance, punctuated with yelps of pain as an unseen marauder drove its lance home with good effect.

I was next to make a find and with a cry of pleasure I announced two pink C. flava. From then on the sightings were frequent. Both pink and white grew in abundance. Many finished, but still easily identifiable as pink or white by spreading the folded petals. Many were in full beauty. The white were not albino's as they all carried the red markings on the dorsal sepal. They were mostly faintly creamy to white though the pinks were a clear, bright pink with the petals slightly darker than the sepals. The usual reddish markings on the dorsal sepal, column and labellum were white. The flowers and stems were slightly shorter than the yellow form of which we saw only two specimens in the whole area searched.

The orchids grew on a most inhospitable rocky hill top with sparse scrub on very thick gravel. These hard conditions probably account for their small size.

We searched an area of about a mile, stopping the car often and walking about a chain into the bush. We found specimens of the pink and white form over a wide area but had not the time to search further afield.

In view of the numbers found and the wide dispersal I think they could safely be recorded as two varieties of C. flava.

Freda Coate, 14 Ecclestone Street, Bunbury, W.A. 6230.

ORCHID SEED FLASKING.

Eric Gordon

Your Council has always believed that one of the surest conservation methods for our native orchids is the growing of plants from seed. There are some of our members who can carry out this work themselves, but the majority of us are forced to rely on either those who can, or on professionals. On behalf of the Council I am happy to tell you that through the efforts of our very hard-working Bill Murdoch we have been able to conclude a most advantageous arrangement with Frank Cicurel the proprietor of CORAL: Collaroy Orchid Research & Analytical Laboratory. Frank Cicurel, a Batchelor of Science (Agr.) also a Corporate Member of the Australian Institute of Agricultural Science, since 1958, is well known to many through his association with Dos Pueblos over a period of 5 years.

Frank, in an effort to help us in our conservation has agreed to flask seed for members at a special rate. This means that he will flask native orchid seed for $2.50 per flask and if required, reflask them for an extra $1.50.

This wonderful offer applies to native species, not hybrids; if you want seeds of hybrids sown and or reflasked Frank's usual charges will apply. All seed must be forwarded either to W.H. Murdoch or to the A.N.O.S. postal address - P.O. Box C106, Clarence Street, N.S.W. 2000. After flasking, plants will be returned by rail or air to the owner, charges forward. It is best that pods be forwarded for embryo culture (in the case of native Dendrobiums, about 6-8 weeks from pollination) as this gives the most positive results. However seed from ripened pods may be sent in well folded paper but such seed will not give such a high rate of germination. Pods for embryo culture may appear green but if they have attained a state of viability you should get a very high rate of germination. It is essential that when you send pods or seed that you nominate the number of flasks you want, sowing only or sowing and reflasking, and above all, as your Society cannot run to the cost of operating a credit system, make sure that you do what a well known T.V. salesman asks "Send your money with it".

BULBOPHYLLUM CLAVIGERUM (FitzG.) F. Meull.

W. T. Upton

Many of our native orchid species, though small are great conversation pieces and not the least is B. clavigerum.

That it is rare is apparent by the few times it has been found since it was first described by R.D. FitzGerald in the Journal of Botany, Vol. 21., page 204 - 1883, as Cirrhopetalum clavigerum. In 1884, on page 3 of Supplement 1 of Baron F. von Mueller's Systematic Census of Australian Plants, this species appears for the first time as Bulbophyllum clavigerum, and gives Cirrhopetalum clavigerum as its synonym. (This is sufficient publication for a new combination, therefore A.W. Dockrill's reference to a new combination in The Orchadian Vol. 1., page 106, December 1964, was unnecessary). In Index Kewensis, Tomus 1, 1895, it appears as Bulbophyllum clavigerum F. Meull., as well as Cirrhopetalum clavigerum FitzG.

To the best of my knowledge the only published drawing of the species from living material is by R.D. FitzGerald in Australian Orchids Vol. 2., Pt. 5 (1893), so I felt very privileged to be loaned a plant just about to flower by Mr. John Ezzy of Kirrawee, in early June this year. Mr. Ezzy received the plant from Mr. Bruce Gray of Atherton.

The first flower opened on the 8th June and by the 11th all seven flowers were open. This particular plant was flowered by Mr. Ezzy in late January last year and it is noticed that R.D. FitzGerald remarks in a note at the end of his original description that it flowers in January.

All seven flowers were closely examined and five of them dissected for drawing and examination purposes, all flowers were identical. Of the two flowers not dissected, one was placed in alcohol and given to the N.S.W. National Herbarium in Sydney, the other was selfed but did not take, this flower lasted in good condition for 10 days.

Several differences are apparent between the original description and drawing by R.D. FitzGerald and this plant. The main ones are (a) The long hairs that cover the pseudobulbs were not so numerous. (b) The flowers were not in a horizontal half circle. (c) Dorsal sepal extends to a long filiform point and is not clavate. (d) Petals extending into long filiform points. (e) Wings of the column protruded forward into filiform points and were definitely not recurved as in the original description. All these points are clearly shown on the drawings.

The general colour of the flowers is creamy to dull yellow with purple spotting. FitzGerald gave the colour as dull yellow, spotted in parts with purple.

A full description of the actual plant and flowers as drawn is:-

Plant epiphytic. Creeping rhizomes. Pseudobulbs light green, ridged, more or less conical with long hairs (remnants of old bracts), mainly around the base, up to 25 mm. high and 22 mm. wide. Leaves, thick, oblong, petiolate, up to 14 cm. long and 35 mm. wide. Inflorescence 24 cm. long, greenish with 4 light green bracts. Seven flowers in a capitulum, more or less in two lines of one with 4 flowers and the other with 3 flowers, each flower on a pedicel of 12 mm. long with a bract of similar length. Dorsal sepal 18 - 20 mm. long; and 5 mm. broad, hooded for half its length, forward edge slightly serrulate, its apical half filiform, dull yellow with purple markings, filiform point dark purple. Lateral sepals 25 mm. long and 6 mm. broad, at widest part, dull yellow to creamy yellow with purple spotting, united for just over half their apical length although the ends themselves are just free. The united lateral sepals are easily separated. Petals 14 mm. long and 7 mm. broad at widest point. lanceolate, ciliate, apical one-third filiform, at apex of petals prior to filiform point are numerous globules of a clear liquid. Petals dull to creamy yellow with dark purple markings, dark purple at apex. Labellum fleshy, much curved, attached to the apex of the column foot by a small claw, 3 lobed, mid-lobe revolute, creamy yellow with purple markings, markings darker underneath. Column about 5 mm. long with a foot about 3 mm. long, lateral wings projecting forward 4 mm., filiform for about half their length, small tooth at base of wings, above, and, a widening of the wings in a horizontal plane near the centre. Yellow with purple markings, mainly spotting, tip of column wings purple. Anther cap yellow, dentate at forward edge and joined to column by a thin white thread. Rostellum white. Pollinia 4 in two closely appressed unequal pairs.

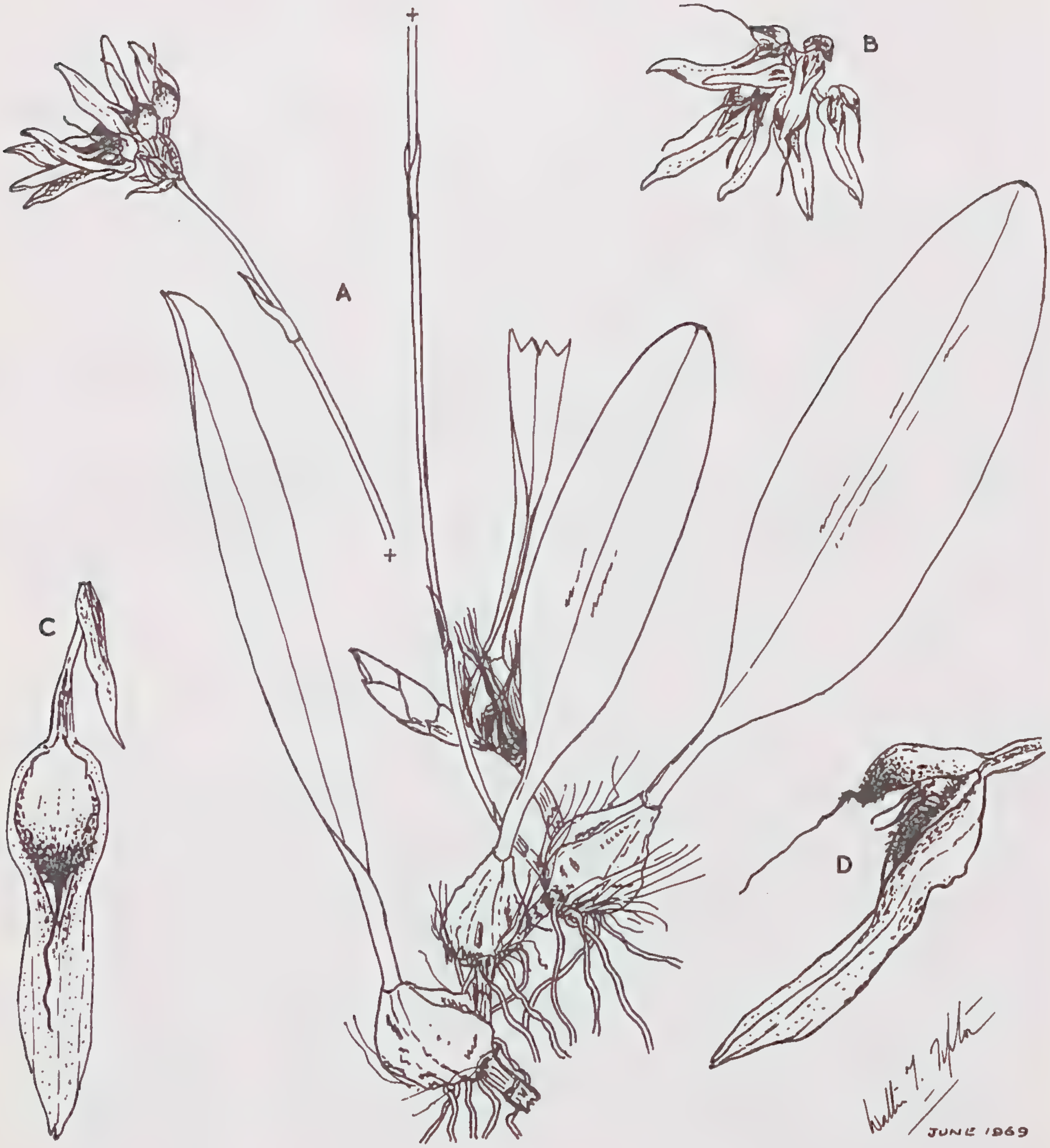
So that readers can, if they so desire, compare the above description with R.D. FitzGerald's original, it is on the same basis.

The description of the species in F.M. Bailey's Queensland Flora Pt. 5. page 1540 (1902) is obviously taken from the original with one or two words only changed.

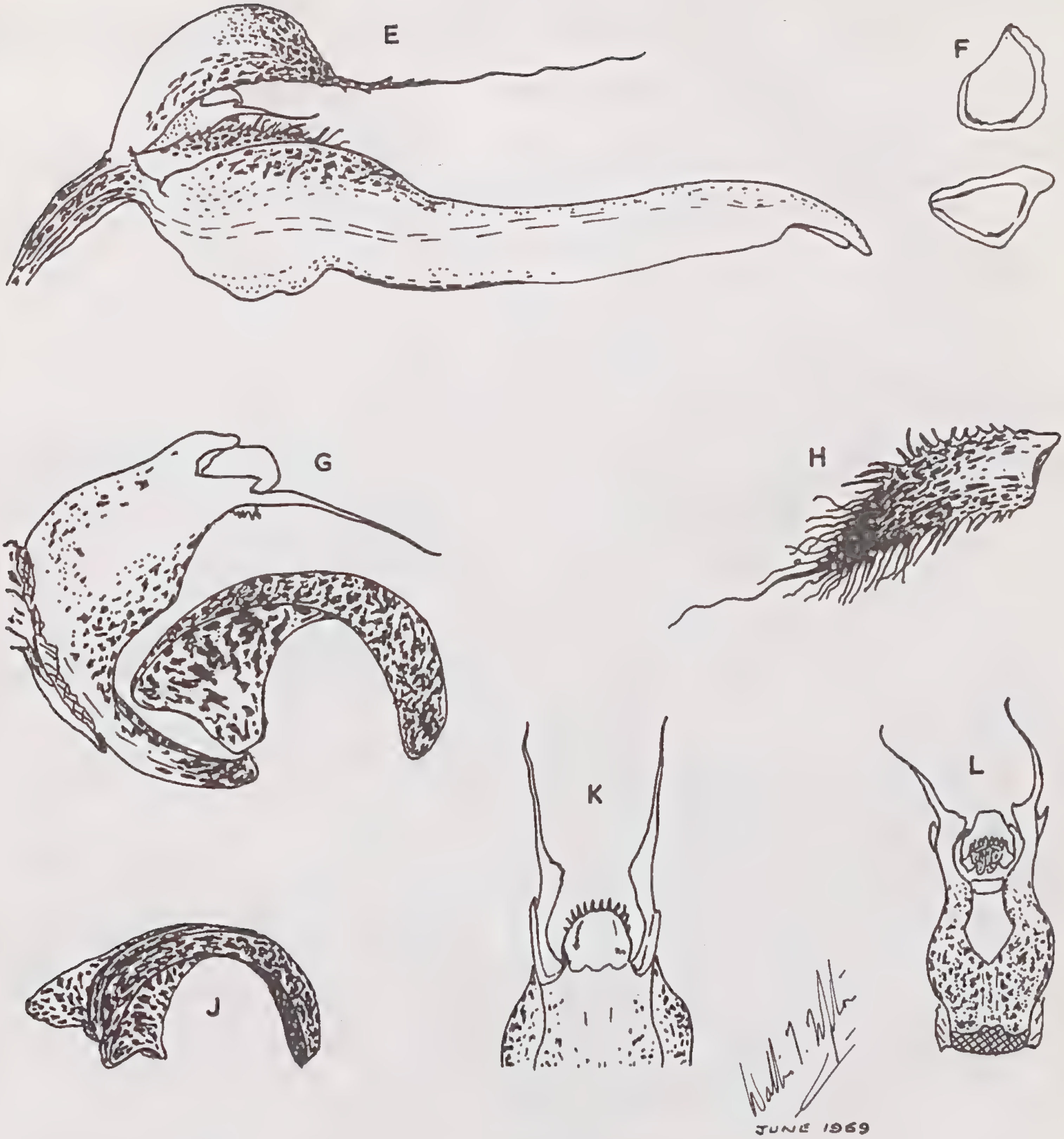
R.D. FitzGerald remarks in a note at the end of the original description "The Cirrhopetalum that comes nearest to this species, as far as I am aware is C. Thouarsii Lindley, C. clavigerum was obtained at Cape York, Northern Australia and flowers in January."

In Australian Orchids Vol. 2. Pt. 5 of 1893, after the description of the Genus Cirrhopetalum FitzGerald remarks "This genus is not recognised by Baron F. von Mueller in his Systematic Census of Australian Plants and the species "(C. clavigerum)" description of which follows is there placed under the genus Bulbophyllum."

continued page 52.



Bulbophyllum clavigerum [FitzG.] F. Muell.



JUNE 1969

Bulbophyllum clavigerum [FitzG.] F. Muell.

BULBOPHYLLUM CLAVIGERUM (FitzG.) F. Muell. – KEY TO PLATES

A. Plant 5/6 X.
B. Looking down on flowers 5/6 X.
C. Flower from above 2½ X.
D. Flower from side 2½ X.
E. Flower from side 5 X.
F. Pollinia greatly enlarged.
G. Column and labellum from side, sepals and petals removed 10 X.
H. Petal 5 X.
J. Labellum 10 X.
K. Column from above 10 X.
L. Looking up into column, foot removed 10 X.

W.T. Upton, 71 Wesley Street, Elanora Heights, N.S.W. 2101.

Bulbophyllum clavigerum (FitzG.) F. Muell. cont.

In "A Checklist of the Orchidaceous Plants of North Queensland", as revised by A. W. Dockrill 1966, the distribution of the species is given as Cape York Peninsula and Pine Creek (where it was found by Dr. Flecker in more recent times).

BULBOPHYLLUM CLAVIGERUM (FitzG.) F. Muell. - KEY TO PLATES.

A. Plant 5/6 X. B. Looking down on flowers 5/6 X. C. Flower from above 2½ X.
D. Flower from side 2½ X. E. Flower from side 5 X. F. Pollinia greatly enlarged.
G. Column and labellum from side, sepals and petals removed 10 X. H. Petal 5 X.
J. Labellum 10 X. K. Column from above 10 X. L. Looking up into column, foot removed 10 X.

W. T. Upton, 71 Wesley Street, Elanora Heights, N. S. W. 2101.

CULTIVATION OF THE GENUS CRYPTOSTYLIS

David L. Jones

Members of the genus Cryptostylis have been grown artificially in Melbourne for the past five years. This has included pots of each of three species being grown both in a glasshouse and outside in a bushouse. Both lots have performed very well but those in the glasshouse are by far the best. The glasshouse is unheated, it simply provides some warmth in winter and a greater degree of protection than does the bushouse. At present three species have been grown successfully - Cryptostylis subulata (syn. C. longifolia), C. leptochila and C. erecta. The first two are from Victoria, and the latter was kindly sent over from N. S. W. although occurring in Vic. The Cryptostylis subulata has been in cultivation the longest. Last year the plant in the glasshouse growing in a 6" pot had 34 leaves and produced 15 spikes of flower. Many leaves are over 6" long.

The best time to collect Cryptostylis is when in flower as tuber growth at this time is virtually non existant. The plants should then be dried off, don't be afraid, they are used to coping with drought. The soil from the clump should then be carefully broken away from the tubers. This is where the preliminary drying out is important. Not only does it ensure that the plant is dormant but the tubers are somewhat wilted and therefore not as brittle as they are when fully turgid. It is important to remove the plant from the soil block as it is entirely erroneous to consider that a plant is being successfully cultivated while still undisturbed in its original soil. The value of being able to cultivate these orchids successfully is their future conservation. To do this properly we must find out their adaptability to various soil mixes, artificial conditions and watering. Once the long tuberous root system has all been exposed, the plant can be put into a 5" or 6" pot using a coarse sandy compost with about 1/3 organic matter added. Good drainage is essential even though some members of the genus are often found under swampland conditions. It is a misconception to stand these pots in water all of the time. Plants treated this way soon harbour a thick growth of moss or liverworts and perform poorly. A better alternative is ordinary overhead watering, the frequency varying with the prevailing climatic conditions. With any terrestrial orchid cultivation it is a good idea to leave a large catchment at the top of the pot to allow adequate water each time.

Cryptostylis in Victoria flower Dec. - Jan. although the buds appear in early November. The flower spikes tend to be very top heavy and it is a wise precaution to stake them early. Often when they fall over damage to the leaves or tubers occurs. The plants respond well to liquid feeding and are generally less susceptible to pest damage than are other terrestrial species. They do best with an annual repotting when it should be found that the pot is full of tubers. Include all fragments broken when repotting as a recent experiment in the glasshouse has shown that some of these have the capacity to form new plants.

This recipe is not dogmatic, no natural system is. However these results have been gleaned from experience under Melbourne conditions and a lot of the basic ideas will be there plus adaptions which experience will show necessary in different areas.

David L. Jones, 7 Yonga Road, Balwyn, Vic.

LIBRARY
ROYAL BOTANIC GAR
STH. YARRA, S.E.1,
3 NOV 1969

THE ORCHADIAN

SEPTEMBER, 1969 PRICE: 30 cents PAGE 53.
VOL. 3. NO. 5.

Published by The Australasian Native Orchid Society

Patron:	Sir John Hall Best	Vice Presidents:	C.K. Ingram L. Bradford
President:	R. G. Napier		
Hon. Secretary:	H. Jay	Editor:	M.J. Corrigan
Asst.Hon.Sec.:	A. Reeves	Asst. Editor:	
Treasurer:	E. Marygold	Publicity:	W.H. Murdoch
Records Sec.:	D. Dawson	Immediate Past President:	E.G. Gordon

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical

MEMBERSHIP RENEWAL

Members are again reminded that annual subscriptions to The Australasian Native Orchid Society fall due on 1st July each year. Post your postal order or cheque, to The Society at P. O. Box C106, Clarence Street, N. S. W. 2000. Ordinary membership is $2. 50 per annum.

ERIC G. GORDON - LIFE MEMBER

At the Annual General Meeting of The Australasian Native Orchid Society on the 27th September, 1969, Eric Gordon was unanimously elected a Life Member of The Society. Eric has served our Society for the past three years as our President and now occupies the position of Immediate Past President of The Society. A member of Council since formation of The Society, he has devoted himself to the problems of unifying and improving the existing communications between members.

The last two years have seen more and more of his time taken with his numerous commitments surrounding the organisation and staging of the 6th World Orchid Conference, and in particular the staging and display area for the native orchid exhibit at the Conference Show.

As members will be aware, Eric decrys the use of surnames in naming new species. However, it is not commonly known that whilst aware of his thoughts on the subject, the National Herbarium saw fit to honour him for his wide and devoted service to Australian botany by naming a subspecies of Acacia after him viz. Acacia brunioides A. Cunn. ex G. Don, ssp. gordonii Tindale. The citation which appeared in Contributions from the N. S. W. National Herbarium Vol. 4. No. 2., pp. 74, included the following "This subspecies is named in honour of Mr. Eric Gordon who drew my attention to this rare taxon several years ago and provided material with flowers and mature legumes for my examination."

I am sure that all members will join with me in congratulating Eric on this the highest honour our Society can bestow and despite his young 75 years we sincerely hope that we may have the benefit of his wise counsel and enthusiasm for many years to come.

AUSTRALIAN NATIVE ORCHID BOOKS - NOW AVAILABLE

Members who read of books soon to be available in the last issue of The Orchadian, may be interested in the latest information relevant to them.

"Australian Indigenous Orchids" by A. W. Dockrill, 825 pages of the most complete and informative reference material ever available on the subject in Australia. All native orchid growers and enthusiasts should have a copy in their library. Almost every description is accompanied by a full page drawing and there are 30 full colour plates included. At $18 per copy it's more of a bargain than originally thought.

"The Orchids of New South Wales" by H. M. R. Rupp. A facsimile reprint with complete up-to-date addendum covering all changes in nomenclature since this magnificent work first appeared in December, 1943. Available from the N. S. W. Government Printing Office, sales section, 55 Market Street, Sydney. Cost $5.00 per copy.

Further information on recently published Australian Native Orchid Books will appear in the next issue. For a complete list of the more important works published on the subject, members should obtain a copy of the Commemorative Brochure produced for the 6th World Orchid Conference which is available from the 6th W. O. C. office, C/- Box 489, G.P.O. Sydney. N.S.W. 2001. This work costs $1.00 and its 60 pages are devoted to orchids in Australia. Buy a copy whilst they last.

NEW GUINEA'S SACCOLABIUM RHOPALORRACHIS (Reichb. f.) J.J. Sm.

N.H.S. Howcroft

In July 1968, I received an orchid from a friend whilst staying at Brown River Forestry. I was able to identify it as Saccolabium rhopalorrachis (Reichb. f.) J. J. Sm., using A. Dockrill's "Australian Sarcanthinae" and Holttum's "Flora of Malaya", Vol. 1 for reference.

My specimen came from Mt. Lawes Forest, 25 miles north of Port Moresby and it was found in an area of monsoon and rain forest at an altitude somewhere near 900' above sea level.

The temperature range of this area based on Port Moresby is max. 91° F, min. 67° F and the relative humidity range is max. 90% min. 49%. Actually the minimum figure for Mt. Lawes is probably higher.

This area has a monsoon climate with rain falling in the north-west monsoon season from December to May and has a dry season from June to November.

Since Dockrill does not record this species for New Guinea, I would like to do so here; the drawing accompanying this article is of the Mt. Lawes specimen showing some floral parts for comparison, plus a short description of this species; measurements of a specimen recently found in the Rigo district on the other side of Port Moresby from Mt. Lawes was also incorporated with those of the Mt. Lawes specimen.

Both specimens were found growing on trees but the trees were not identified by the collectors.

Plant description:

An epiphytic monopodial; stem length 2.5 - 5.0 cm., diameter 0.7 - 1.0 cm., leaves linear, narrowly oblanceolate, apex unequally bilobed, apparently perfoliate, thick, leathery, coloured light to dark green; length 11.0 - 16.0 cm. x 2.3 - 2.5 cm. wide, up to 2.0 mm. thick; plant may carry 3 - 5 (or more) leaves.

Inflorescence - flowers born along thick scape or rhachis 5 - 6 mm. diameter x 3.0 - 12.0 cm. long, sometimes perpendicular or curved downwards but mainly horizontal, flowers borne in succession, usually in two whorls (5 - 7 blooms) at a time; each flower produced from a pit in the surface of the scape. Flowers fragrant, lasting only one day, two or more weeks lapsing between each flush of flowers (at Bulolo).

Flowers with white petals and sepals, petals with slight flush of orange near apex. Labellum marked with orange. Dorsal sepal 11.0 mm. long, 4.0 mm. wide, linear oblanceolate, apex acute, lateral sepals ± unequally sided, linear oblanceolate, 11.0 mm. x 3.5 mm.; petals narrow, 10.5 mm. long x 2.0 mm. wide, apex acute. Labellum laterally compressed about 8 mm. long from tip of mid-lobe to base x 1.5 - 2.0 mm. wide dorsally, erect rounded lateral lobes deep orange coloured at the base of the mid-lobe with orange coloured callus wedged between; side lobes divided by small cleft, mid-lobe white before rounded spur approximately 2.0 mm. in depth x 2.0 mm. wide. Column 3.5 mm. long, 1.0 mm. wide dorsally, colour white. During flowering it was noticed that each bloom exuded copious amounts of clear mucus, presumably from the stigmatic section, sufficient to fill the whole stigmatic cavity. Only one pod of seed has been produced over the whole year of observation, so it appears this fluid may not be enough to induce pollination as was first thought.

Recently my plant completed its flowering along the entire length of each of its scapes and I have noticed that the plant has become active again and has commenced new leaf growth. Root growth appeared to be active throughout most of the year and if any cessation occurred in root growth during this period it has escaped my notice.

Cultural notes:

Unfortunately my experience in growing this orchid is rather limited as I have only one plant which I jammed in the fork of a Frangipanni tree, here it attached itself within a fortnight, after "planting" and has never looked back.

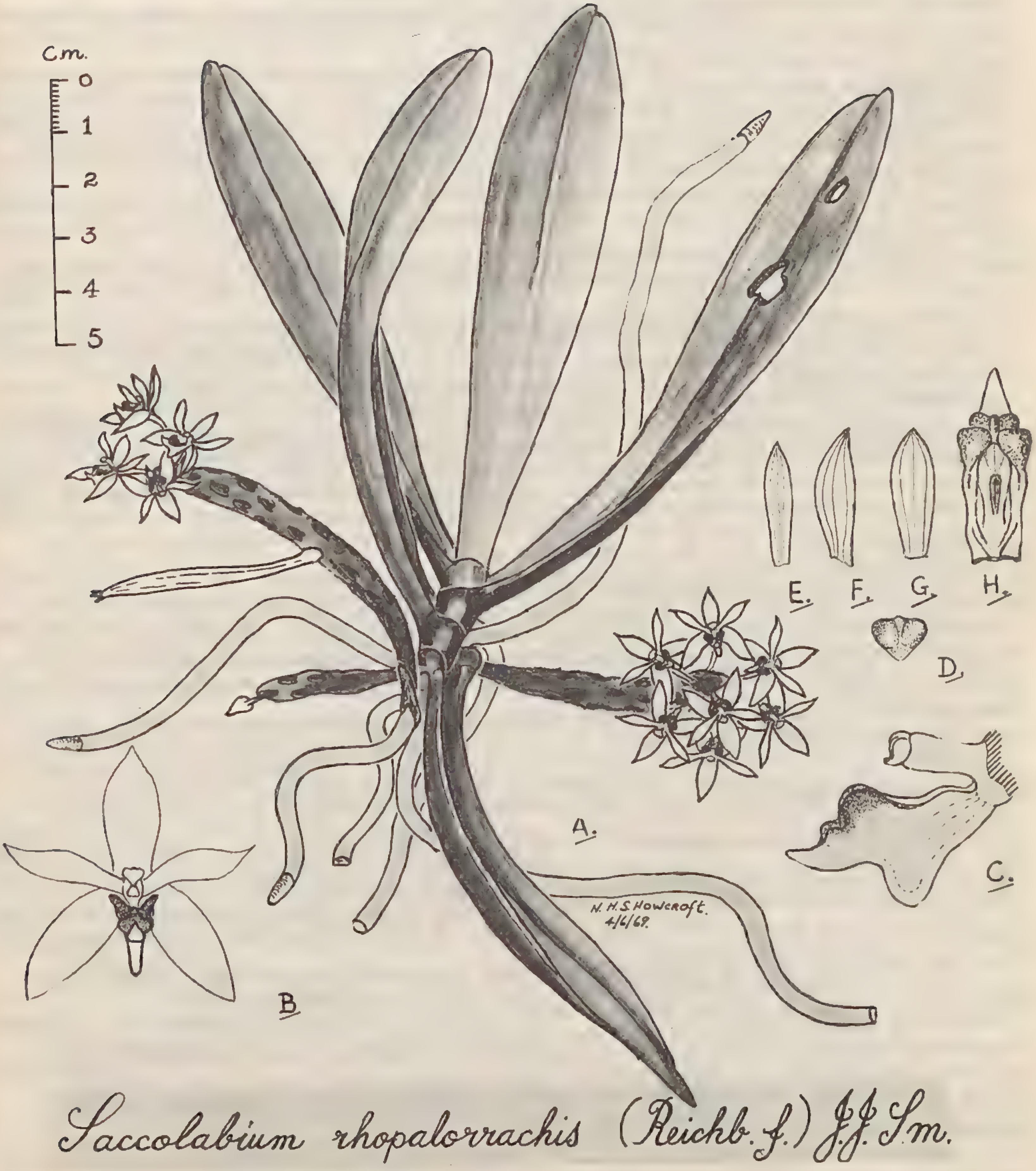
In this position the plant receives a fair amount of sunlight up until midday, after which it is protected by varying amounts of shade, depending on the host tree's crown condition at the time. Watering is limited to usually once a day, mainly in the afternoon, with some Aquasol also sprayed onto the foliage by hand spray. On top of this the plant also benefits from the Bulolo rainfall which is around 90" per. annum and scattered throughout the year, ranging from light showers to very heavy tropical downpours.

For collectors of Australian and New Guinea native orchids, this plant should make a delightful addition to their collection.

N.H.S. Howcroft, Department of Forests, Bulolo, New Guinea.

SACCOLABIUM RHOPALORRACHIS - KEY TO PLATE

A. Adult plant	natural size.
B. Flower, to scale	X3.
C. Labellum & column, lateral view, to scale	X5.
D. Anther, front view, to scale	X10.
E. Petal flattened, to scale	X2.
F. Lateral sepal, to scale	X2.
G. Dorsal sepal flattened, to scale	X2.
H. Dorsal view of labellum, to scale	X5½.



Saccolabium rhopalorrachis (Reichb. f.) J.J. Sm.

NATIVE ORCHIDS AS I SEE THEM

Marian Beek

Before coming to Australia I lived in Indonesia, which is a country where orchids are very common. Epiphytic orchids grow on nearly every tree. After the monsoonal rains they suddenly begin to bloom, curtaining the branches with their loveliness: big conspicuous purple blooms, or delicate sprays of waxy white flowers, filling the air with their fragrance.

Here in Australia I have lost my heart to all the little ground orchids, the terrestrials, which grow along the roadsides, or in the shady undergrowth of the bush.

I think that everyone knows the showy "spider" orchids which flower in the spring, but there are more, not so showy or conspicuous and so unlike any other flower I have ever seen before, and now I am referring to the lovely "greenhoods".

When for the first time I came upon a patch of them, I just sank down and gazed and gazed. There before me was a whole regiment, well, hundreds of them! They had slender stems, four inches high, each carrying a strange, pale green helmet-shaped flower with darker stripes and a long pair of long thin "curls", curved gracefully over the hood. Curls, which looked so much like "feelers" of a beautiful insect. They looked so unreal, so like something out of a fairytale story, that I expected them each moment to get wings and take flight!

Since that time I have seen many more "greenhoods" or Pterostylis, all of them just as beautiful and just as fascinating. But when I see them I cannot help comparing them with people, because I think they look so human!

There are for instance, the dwarf "greenhoods" or Pterostylis nana, the tiny ones with flower stalks only an inch high and always growing in a colony, like little children, grouped together in a play.

The nodding "greenhoods" or Pterostylis nutans, which humbly bow their heads; P. curta which stand so straight and pertly erect like an army of soliders and P. pedunculata with dark brown helmets, looking so much like a group of monks, lost in meditation. There is even a very respectable grandfather "greenhood" with a long fluffy beard hanging out of the hood. "Grandfathers" are not so plentiful, so they stand mostly alone. This is of course P. barbata.

There is another "greenhood" which has my fancy also. This is P. longifolia, which doesn't have the dainty feelers which give the other flowers such a dainty appearance, but this orchid has several flowers on its stem, flowers which are startlingly ALIVE! The lateral sepals hang down helplessly, giving the flower an open, gaping look; the more so because the labellum, long and conspicuous, dangles in the middle of it. This labellum, when touched, flies up unexpectedly, closing the hood. When I showed my boys what happened, they were delighted and came back again and again, and the poor flowers had no rest!

But once there was excitement, because something had been there first. The hood was closed. One black spidery leg was sticking out at one side, one fragile wing showed at the other side of the labellum. A tiny insect was trapped inside. Through the translucent flower we could see him struggle to get free and after a while he was walking around in his tiny green prison. I do not know how long the insect was kept inside, but this of course is what the sensitive labellum is meant for: to trap an insect for a while to pollinate the flower. Hasn't nature a marvellous way of achieving this!

Deep down in the undergrowth of the bush, in moist places, under decaying twigs and leaves, grow some other orchids. Their round, flat, ground hugging leaves carpeting the ground. They are so small and humble, their colours blending so well in the surrounding growth, that one can easily walk right over them without noticing. They are the Corybas, which grow little round tubers, no bigger than a pea, hidden in the soil and in autumn, by some mysterious force, they are stirred to life. First a leaf appears, a tightly rolled leaf, like a green cylinder, drilling its way through the dark earth, up, up to that life giving light above. After a while these leafy cylinders unfold themselves and cradled in the safety and protection of the rolled up leaves are the new born buds. The leaves open out flat and the buds, snuggled closely on them, grow plumper and gradually change colour until they are deep purple, opening suddenly into a strange but beautiful helmet shaped flower, with a delicate veined and fringed labellum and cupped in its centre a conspicuous white "boss".

When you find such a colony, stand still for a while, bend down and give them a closer look. There they are, like so many fringed eyes gazing up at you in sheer amazement!

Here in South Australia are two varieties which often grow together. On a small stalk, one stands up boldly and opens its flowers wide. This is Corybas dilatatus. The other C. diemenicus is smaller and snuggles down closely on its leaf and it keeps its fringy side whiskers primly around its face. Then, suddenly all their meekness and humility is gone because a tiny insect has pollinated the flower. The little stem proudly begins to grow until it is several inches high, lifting its seed pod triumphantly up to the world.

Why has this little orchid a sudden urge to grow its seed so high? Why indeed, after it has been content to grow so quietly and unobtrusively so close to the ground for so long? Because like all good parents who want to give their children a good start in life, it is now most important that

continued page 57.

Native Orchids As I See Them Cont'd.

the tiny seeds when ripe are scattered around and do not fall too close to the parent plant. After this their short but oh so interesting life is ended. The plants shrivel and disappear and the tubers go to rest till another season.

Marian Beek, 12 Merino St., Naracoorte. S.A. 5271.

THE REDUCTION OF TWO QUEENSLAND PTEROSTYLIS TO SYNONYMS

S.C. Clemesha

It is seldom that a species of orchid becomes invalid for more than one reason and on this point Pterostylis speciosa T. Hunt, (not of Colenso) could be said to hit the jackpot as it is invalid for three reasons, viz. (1) as pointed out by L.I. Cady, it is only a form of P. revoluta and must be regarded as a synonym of this species, (2) E.D. Hatch appears to have been the first to realise that the name speciosa was used first by Colenso on a plant that is now regarded as a synonym of P. banksii R. Br. var banksii, (3) the plant was described from a solitary specimen, a very unwise practice, and all attempts to obtain more specimens have failed. Thus it is not an established species. Hunt published it in Queens. Nat. Vol. 16, 1 & 2 (1958) 7, Ill. pp. 8.

Its main point was said to be the possession of spirally twisted lateral sepals. Often P. revoluta sepals have a slight twist though seldom as pronounced as in the species under discussion. The finding of this common inland species on Stradbroke Island provides the northern-most recording known. It grows in very sandy areas near Wyong N.S.W. As these conditions are common on Stradbroke Island it is almost certain that it was found in a sandy area.

P. erecta T. Hunt, Proc. Roy. Soc. Qld. LXIX (1958)8, 89, Ill. This plant was collected near Samford, north west of Brisbane Qld., in association with P. russellii T. Hunt, a very rare but apparently quite distinct Pterostylis species. Although the sepals of P. erecta are shorter than typical specimens of P. pedunculata R. Br., the flower bears no significant difference from it and a number of botanists have regarded it as being a synonym for some years, so its reduction to such is little more than a formality. Significantly, Mr. M. Percival of Brisbane has rediscovered the P.russellii colony (only one is known at present), but the only specimens of P. pedunculata near it have been quite normal.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120.

A NOTE ON ACIANTHUS

B. Whitehead

"...often occurring in countless thousands". If anyone should doubt this statement about Acianthus fornicatus by Rupp in "The Orchids of N.S.W." 1943. Then a visit to the central coast of N.S.W. should confirm its accuracy. This area, from about Wyong, to at least as far north as the Port Stephens area, besides containing a number of Acianthus fornicatus which is impossible to estimate, must surely be one of the areas of the greatest concentration of the genus in N.S.W. In most areas suitable for the occurrence of Acianthus species, (usually damp hillsides, damp areas near creeks and many kinds of damp natural forest), at least two species of Acianthus can be found in large numbers, usually A. exsertus and A. fornicatus. Around Newcastle, the numbers seem to increase and the carpets of A. fornicatus become more common and denser, and scattered groups can be found beneath almost every bush, at the base of every tree and in dense patches near depressions, in areas suitable to the growth of terrestrials.

Mixed with these but not quite as numerous are groups of Acianthus exsertus, and sometimes small groups of A. reniformis also inhabit the area.

West of Newcastle, in the bush around Mt. Sugarloaf, areas occur where four species of Acianthus - exsertus, fornicatus, reniformis and caudatus can be found mingling with one-another, and all in considerable numbers.

Usually A. exsertus is the first to flower, overlapping with A. fornicatus and very early plants of A. reniformis, so that if one chooses the right time, all three species can be found in flower at the one time. A. caudatus appears later, about September. The wide variety of habitat of the Acianthus is no less surprising - moss on rocks, leaf mould beneath trees, humus covered areas on the forest floor, sand, creek banks, stony ground where dampness remains, any or all of these can provide a home for Acianthus, provided suitable shelter is available.

It is interesting to note that forms of Acianthus exsertus can be found in the area mentioned which depart from the normal coloured pale purplish plant in that they are almost entirely pale yellow. The dark purplish flower and labellum of Acianthus fornicatus of this area (and others), contrasts with the paler flowers and green surfaced labellum which appears to be common in plants of the species in parts of the south coast.

B. Whitehead, 35 Burke Road, Dapto. N.S.W. 2530.

THE LURE OF THE ORCHID

H. J. R. Overall

What has the orchid that it so attracts so many?

Australian wallabies and Himalayan yaks rate them as dainty morsels of food.

Man, who attains a standard of culture that enables him to appreciate the beauty of other living things, can find enduring pleasure in the beauty and almost limitless variation to be found within this one natural order of plant life.

In no other plant family do we find such diversity of colour, size, form and living habits. The colour range in the flowers of the innumerable species is as wide as the rainbow; in size, from the minute to the majestic. In form the members of this great company appear to know no bounds, and yet all conform to a basic architecture, - six floral segments (even though in some cases two of these may be united) and sexual organs on a common pillar or column.

Equally interesting is the vastly differing mode of life of these orchid beings. One will cling to the trunk or top-most branches of a jungle giant and draw its nutrient from the material leaching down from decaying leaves with every shower of rain. Another prefers a seemingly inhospitable cliff face. Many terrestrial denizens of open and of shaded bushlands have a tender tuber in the soil and thrive in association with interwoven forms of life, throwing up soft green foliage and displaying delicate or curiously wierd flowers when the seasons are favourable. In times of drought these plant things "hibernate" - remain dormant, until conditions are to their liking.

Just a few orchids are giant climbers. In Australia there are two species that hide their lack of beauty beneath the surface of the earth.

Yes, what diversity - stages in the evolution of living forms?

Geographical distribution of the orchid family is such that except for the frozen polar regions and arid desert country, the orchid family is represented wherever plant life exists.

Generally different groups or genera are restricted to fairly definite regional distribution, this may be wide or a relatively small zone.

With the quickening speed of man's removal of the earth's natural clothing of vegetation during this 20th Century, many species of plant life as well as fauna will be known of like fossils;- records of a past age.

May it be a self imposed duty of each one of us to endeavour to preserve something of our Australian heritage;- orchid species or forms indigenous or endemic in Australia.

Official "protection" in the bushland is rapidly becoming ineffective. Preservation in smaller natural habitat parks and reserves can be effective to a considerable degree but the more effective manner of preservation of the many varying forms of our native orchid species is by intelligent cultivation and propagation by interested members of our community who will give time to diligent study and observation. This may take much time and calls for care and patience. The rewards will be a lifelong interest which may well sustain us in greater measure as the years pass.

Any one group or genera of orchids which will grow freely under available conditions may well serve as the basis of one's lifetime hobby. Dendrobiums naturally suggest themselves to me as we have a number of species and so many varying forms, once in plenty but still to be found along the coastal districts of New South Wales.

Several naturally occurring hybrids form an interesting group too. Dendrobium x delicatum F. M. Bail., of which the first form was collected near Toowoomba in southern Queensland and subsequently collected by Slater on Alum Mountain, Bulahdelah, N.S.W. has long been accepted as a natural hybrid resulting from the cross pollination between the species Dendrobium kingianum and D. speciosum. Varying forms of this hybrid have been found in many other locations where some forms of the species D. kingianum and D. speciosum abound.

Seedlings of D. kingianum x D. speciosum are now being grown. Comparison with a number of naturally occurring D. x delicatum should add to our knowledge of this "species".

Dendrobium kingianum x D. gracilicaule, now known as D. x suffusum, was found in nature in the Laurieton area in N.S.W. and later produced by artificial cross pollination.

Dendrobium x gracillimum, originally described by Rupp as a variety of D. speciosum is, on the clear evidence of the varying forms, a naturally occurring hybrid between the species Dendrobium gracilicaule and D. speciosum.

Dendrobium speciosum x D. falcorostrum. A specimen apparently of this hybrid has been collected in the western Dorrigo area N.S.W. A portion given me two years ago is now flowering. The dorsal sepal is distinctly curved backwards as is D. speciosum. In other respects it is hardly separable from D. falcorostrum. This hybrid was raised by Hermon Slade about 1955 and which he named Dendrobium Andrew Persson.

The first recorded hybrid of N.S.W. native species is D. Ellen (D. tetragonum x D. kingianum) raised by Wilhelm Schmidt in 1914. A photograph of this hybrid was published in the "Australian Orchid Review", Vol. 2 No. 4. Dec. 1937.

Dendrobium Bardo Rose (D. falcorostrum x D. kingianum) and Dendrobium Profusion (D. x delicatum syn. D. kestevenii x D. kingianum) were raised by the author in 1952. Within the past few years many hybrids of Australian species have been raised by a number of enthusiasts.

continued page 59.

The Lure of the Orchid Cont'd.

Perpetuation of the species by raising from seed of selected forms should be given consideration. The great range of variation through the species D. kingianum as found in different locations offers a good field for investigation and cross breeding. The writer has several hundred small plants of cross-bred D. kingianum growing for practical experimental purposes; selected forms have been used for parentage.

The controversial subject of composts and nutrients is perhaps an "evergreen" for trial and discussion for all who practice the art of orchid culture. In this field the conditions under which plants have evolved and continue to thrive in nature is the best guide but close and careful observation is essential in order to acquire really vital details of growth in the wilds.

H. J. R. Overall, Newport, N. S. W. 2106.

QUESTIONS AND ANSWERS

Question. I recently saw a lot of hyacinth orchids growing in the bush in southern N. S. W. How do I grow these? H. McDonald, Drummoyne.

Answer. Dipodium punctatum - which is sometimes called the hyacinth orchid has no green leaves and gets its food from soil fungus. A number of orchid species live in this way. Unfortunately the relationship between the orchid and fungus is an extremely delicate one, which invariably is destroyed in transplanting, with the result that the orchid slowly dies of starvation. No one in the world has found a way of growing this interesting group of orchids. However, Dipodium ensifolium from north Queensland has similar flowers to D. punctatum and can be cultivated as a garden plant in the tropics, or in a pot of fir bark in a glasshouse in cooler climates.

Question. A friend of mine recently told me he saw a large red orchid in a swamp on the north coast. What would this be? L. Middleton, Cronulla.

Answer. It is difficult to identify plants without a fresh or pressed flower but it may have been Phaius tankervilliae or P. australis.

Question. Last week (January) I found some large greenhoods which were white with red stripes. What would they be? I found them at Mittagong N. S. W. P. Grabham, Palm Beach.

Answer. Most probably Pterostylis coccinea which occurs in this general locality and flowers in summer. Please send in pressed flowers for identification.

Question. Could you tell me where I would be most likely to find Pterostylis baptistii? J. Gibson, Haberfield.

Answer. Pterostylis baptistii occurs from far north east Victoria to north Queensland, occurring only in the highlands of the latter. However, it is rare south of the Hunter River. Its favourite habitats are swampy flats under paper bark trees.

Question. I recently received a plant labelled Dendrobium pugioniforme from north Queensland but it has much thicker and heavier leaves than the D. pugioniforme I found on the north coast. Could it be D. rigidum? W. Thomas, Narrabeen.

Answer. It most probably is. D. pugioniforme does not occur in north Queensland and it has been confused with D. rigidum.

DENDROBIUM LOBBII IN NEW GUINEA

N. Howcroft

With reference to The Orchadian, Vol. 2. No. 10. pp. 130-131 and Vol. 2. No. 11. p. 137. Mr. I. D. Walters and Mr. R. Smythe will be interested to learn that recently Mr. Andy Gillison, a botanist with the Bulolo Forestry School, recently brought a flowering specimen of Dendrobium lobbii T. & B., into me for identification.

At present we are not sure that this is the first recording of this species here, but we hope to learn more about it from the Herbarium in Lae.

Basically the plant and flower answer the description by I. D. Walters, even to its habitat; which up here was grassland swamp or soaks at approximately 5,000' altitude.

I've asked Mr. Gillison if he could give The Orchadian some photographs and more information. At present the only specimen flower is in my preserved collection in alcohol, but we expect more flowers will be produced in the next few weeks, providing it accepts the conditions it is placed in.

N. Howcroft, Forest Office, Bulolo. T. P. N. G.

STRADBROKE ISLAND BUSH WALK

M. J. Percival

At sun-up, on a fine day late in May, shortly after leaving the beach on the start of an eight mile walk I stood looking down at a colony of terrestrial orchids. These were fine sturdy plants of Thelymitra spp. scattered loosely about on the edge of boggy ground, all about 12" high. An odd one had first signs of spikes deep down in their leaves. With them were some Spiranthes sinensis and a little further on a colony of Caladenia alba growing in damp leaf mould in a shady glade. These are very beautiful when they grow en masse in cool natural surroundings. On a small piece of land, rising from a bog, I found Spiculeae irritabilis plants of a giant size, with flower stems beside them, that had bloomed a couple of months before. With them were Cryptostylis erecta with some plants carrying buds on long (7") flower stems which is not usual at this season. Also Corybas spp. in a dense mass in the shade of the undergrowth, with flowers just starting to form. Next I saw the lovely green, erect leaves of Phaius protruding from the tall grass as I left the bog area and set course for higher ground.

The island is almost all pure sand laced with centuries of decayed vegetable matter which in the cooler months keeps just a suitable dampness and on the high ground dries off when the hot weather comes again, making it ideal for the islands plants. I found Geodorum pictum in semi-shade and Dipodium punctatum in full 20" regal beauty. Caladenia alba grew everywhere again and Acianthus exsertus also in flower. Around an old stump I found about 40 plants of Caleana major - several with spikes to 6" high from the largest leaves. Usually here they are in much smaller and looser colonies and I think the old decayed bark in the sand must have made a perfect growing mix for them. My next wonderful surprise was finding an oak tree with eight 6' fresh stems of Galeola cassythoides growing up the trunk and later I saw about 10 plants at four other sites. This was something I wanted to find for photographing at the right time in spring. Also I was very interested in Pterostylis spp. and coming off a ridge into open forest which had a matt of leaf mould and was slightly shaded, I saw a colony of Pt. nutans. Searching about I found Pt. ophioglossa in a tight colony. Both species were blooming well. Not far away again on higher slopes among Caladenia alba and Caleana major I saw tiny rosettes of Pt. parviflora. To my mind the rosettes of this species are the beauty of the plant and I always like to come across them. They were in full beauty with perhaps the first bloom fading and had very nice red-maroon and white colouring. Very different from the forms I have found around Brisbane and the mountains inland. These are pale green and green and honey coloured. After a long walk over country crowded with alternate patches of short brush and open banksia and gum forest I found a rosette of a Pterostylis I did not recognise immediately. Searching around I turned up a number of others and they were just starting first signs of spikes.

These were almost certainly Pt. mitchellii and in the spring I will photograph them. It was time to make a hurried return to catch the boat home and I found only one more species, Dendrobium linguiforme covering limbs on a gum topped box tree. Diuris, Cymbidium and Prasophyllum spp. grow there also and probably some I have not found yet. Only the reader who is a naturalist will appreciate the pleasure of a walk such as this in the unspoiled bush. I would be only too pleased to show visiting members over this area if they care to call on me.

M. J. Percival, 475 Wynnum Road, Wynnum, North Queensland. 4178.

AN UNUSUAL HABITAT RECORD FOR PTEROSTYLIS REVOLUTA R. Br.

B. Whitehead.

The common Pterostylis of the inland, P. revoluta, has proved its versatility by its occurrence in a coastal habitat far removed from that of the inland one. Normally found on hillsides in humus-rich soil in drier areas of the state, it was discovered by the writer in 1966 on dunes, among hind-dune vegetation, south of Noraville N.S.W., and not very far from the sea.

First found in May 1966, revisited in May 1968 and 1969, it was found this year that the largest colony of plants, several hundred (rosettes) in number, had disappeared, having been destroyed by a combination of two factors - vehicles making new tracks through the bush and people digging up large Burrawangs (Macrozamia sp.) presumably for transfer to gardens. Although much smaller colonies had been found in areas a little distant from the original large colony, an extensive search of the bush in the immediate vicinity of the lost colony revealed only a very small colony of the same species. It is more than likely that the plant will become extinct in this area eventually from mining operations.

Normally found in the inland in the company of such orchids as Caladenia dilatata, Pterostylis nana, Caladenia caerulea and Pterostylis boormanii, the coastal plants have, as neighbours, Pterostylis concinna, P. acuminata, Corybas pruinosus and Caladenia caerulea.

Flowers of the coastal plant were identical in formation and colour to plants observed in inland areas.

Brian Whitehead, 35 Burke Road, Dapto. N.S.W. 2530.

AN OBSERVATION ON THE POLLINATION OF BULBOPHYLLUM BAILEYI

R. Smythe

The relationship of insect and plant has been of considerable interest since the time of Charles Darwin. He postulated the involvement of insects in cross pollination of plants. Many fascinating theories were propounded and shown to be correct with the passage of time. For instance, the postulate that a moth with an extremely long probiscus, necessary to reach nectar, would be responsible for pollinating some Angraecum species of orchids. Such a moth was subsequently found in Madagascar where the Angraecum species grow.

Since the time of Charles Darwin and in our own country, the act of pollination, by male wasps, of the Cryptostylis genus has been observed. The male wasps being attracted to the flower possibly by its scent and mistaking its allure for that of a female wasp, causes pollination while attempting to mate. This is not as rare a happening as one might think. In fact an orchid colleague of mine reported to me that while he was setting up a Cryptostylis for photography on the verandah of his home, up on the Atherton tablelands, a wasp loved and left, as the saying goes and hence removed the pollen before he could click the shutter.

To my own limited knowledge I am not aware of insects giving their lives in pollinating. I do know of temporary confinement in some Pterostylis species and other sensitive flowers. Carnivorous plants such as sundews and pitcher plants, as their classification implies, feed on insects but do not use pollination to trap them to my knowledge. Considering the exotic genus Coryanthus, we might say that unless the insect is a good swimmer he might die trying to escape from the nectar pool. If he does escape, he might pollinate the orchid as he brushed against the stigma which he must pass in his only available channel of escape.

I have mentioned the above incidents not only for the value of the interested reader but as a lead up to an observation of my own of much less significance, where I have actually observed pollination with loss of life by one of Queenslands notorious fruit flies.

My plants of Bulbophyllum baileyi regularly excrete a fruity odour into the atmosphere and are swarmed upon by the fruit fly Strumeta spp. These flies, four to five to a flower, regularly visit each morning. Many times I have watched the flies remove the pollen attached to their backs. This morning a fly completed the second stage and deposited the pollen on the stigmatic surface. The fly being a small insect, was left suspended in space attached to the stigmatic surface via. the pollinia. Here it remained until it died. Whether this observation is the rule or the exception to the rule can only be determined by further investigation of freshly pollinated flowers. Since the ovary of Bulbophyllum baileyi swells considerably in a couple of days, even the pollinia are pushed off, so it would probably require actual observations of the act to determine the frequency of mortality. Either way I thought it an interesting enough observation in that fruit flies appear to be the exclusive agent in pollinating B. baileyi at least in the Townsville area.

R. Smythe, 69 Bundock Street, Belgian Garden, Townsville. QLD. 4810.

CORYBAS IN CAPTIVITY

B. Whitehead

Eventually, from the experiences of growers of terrestrials, a satisfactory and relatively simple general method of cultivating this novel and most unusual genus may be found, even if the first successful steps are taken with a restricted number of species.

S. Clemesha has mentioned the success in bringing Corybas buds to flowering stage by placing a bottle or glass cover over the budding plants. My observations emphasise the importance of the theory behind this treatment. The full and successful development of buds on plants of Corybas in cultivation can be adversely affected by at least two factors. Wind will quickly destroy developing buds, and a similar effect will be had by a sudden or unseasonable change in temperature. Indeed, an examination of a colony of Corybas in its natural habitat will often reveal more plants with buds withered at some stage of development than plants that have actually reached full flowering.

I have found, along with other growers, that full shade produces good results, and of course, a well-drained compost is a necessity. A topping of leaf-mould or dead dry leaves also helps improve the plants.

Species which may respond most easily to cultivation in coastal areas of N.S.W. are Corybas fimbriatus, pruinosus and diemenicus. In inland areas, C. fimbriatus and diemenicus could prove to be the most satisfactory.

I have had little success with C. aconitiflorus and C. unguiculatus, although results with C. unguiculatus have not been quite as devastating as those with C. aconitiflorus. The genus is, I believe, one that is worth some perseverance. The rewards, though small to the eye, are pleasing to the careful and appreciative observer. The very novelty of the tiny purple hood on the round green leaf even arouses the interest of the casual observer of our plants.

B. Whitehead, 35 Burke Road, Dapto. N.S.W. 2530.

PTEROSTYLIS LONGIPETALA Rupp.

S.C. Clemesha

In June 1931, E. Nubling collected a specimen of a Pterostylis at Batemans Bay N.S.W., and sent it to the Rev. H.M.R. Rupp who stated it was prematurely withered but responded to good treatment. He noticed it was unusual in possessing petals with filiform ends and a microscopic examination revealed a minutely emarginate labellum. As Rupp had only one specimen he did nothing with it till he received more material from Huskisson. However, the latter specimen did not possess petals with filiform ends, but never-the-less Rupp went ahead and described it as a new species with the Batemans Bay specimen as the type.

It was published as Pterostylis longipetala Rupp, in Proc. Linn. Soc. N.S.W., LXVIII, 9 (1943) and later in Orchids of New South Wales 91 (1943). Since Rupp's death another battered old specimen collected in the 1930's at Burragorang Valley has been determined as P. longipetala, apart from this plant it has remained unknown, despite many attempts to find it by numerous collectors. L.I. Cady made a sketch of P. longipetala from one of the specimens which was published in Australian Plants Pl. 5, 38, 66 (March 1969).

The absence of good material has lead to this species being viewed suspiciously by some workers and the plant bears a close resemblance to P. reflexa R. Br. From the descriptions it would seem that the two differ in the dorsal sepal being "much deflexed in front", in the petals ending in filiform points, the emarginate tip to the labellum and in their smaller size and later flowering period. It is hard to understand, after examining the existing specimens of P. longipetala, how any one could be sure that the dorsal sepal was much deflexed in front. The type specimen is the only one with filiform petal tips and it is in such poor condition that this could be the result of withering. W.T. Upton flowered a specimen of P. reflexa which had a clearly bifid labellum which could easily be seen without magnification. This specimen otherwise was normal. I have specimens of P. reflexa from the Grose Valley N.S.W. which though all from one colony, vary considerably in size. The only one I dissected had a labellum tip which was just as emarginate as P. longipetala. The smallest specimens of this collection are only a little shorter than the largest, yet all their segments, particularly the petals are narrower and more finely pointed than the larger specimens. A smaller specimen from another area has even finer points. This all suggests that the smaller the flowers the finer the petal tips. The small size of P. longipetala is not a reliable guide as P. reflexa varies considerably in size. The Burragorang Valley specimen of P. longipetala was collected in May, which is within the normal flowering period of P. reflexa. The other two, especially the type specimen, are unusually late though flowers of other autumn species e.g. P. revoluta and P. obtusa occasionally appear this late, especially in a bad season, which would lead to unusual characteristics. For these reasons I am not able to regard P. longipetala as anything but a form of P. reflexa.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120.

PTEROSTYLIS BOORMANII Rupp.

Ray Nash

I would like to express my pleasure with the fine work that appeared in the June 1968, issue of The Orchadian, dealing with the "rufa" group in the genus Pterostylis. My congratulations to both J.A.P. Blackmore and S.C. Clemesha on this very fine and much needed 'sorting out' that they very successfully carried out.

The names chosen for the new species were excellent and I hope others will follow the example of naming new plants after a feature of the plant if possible.

I should like to add, for the Societies records, that Pterostylis boormanii (formally as per Black's flora, Pt. mitchellii) is still to be found near the Grange, a suburb of Adelaide and that it also occurs at Halbury. Specimens have been posted to Steve Clemesha. Pterostylis biseta has been found by myself, throughout the Blackwood district, all areas now gone, due to house building; west of Gawler, this area too has been cleared; near Williamstown, still there; near Hartley; outside the Wilpeana Pound, along the track to St. Mary Peak and a few miles south of Blinman.

The Pt. boormanii that I have seen here in South Australia have just the faintest showing of red and are almost wholly green. They do not have such prominent cilia on the front sepals either, otherwise they are much the same as the smaller plants found in New South Wales.

Ray Nash, 77 Coromandel Parade, Blackwood, South Australia. 5051.

DENDROBIUM ADAE F.M. Bail.

S.C. Clemesha

General. A member of the section Dendrocoryne (this includes D. fleckeri, speciosum, kingianum and D. tetragonum) of the genus Dendrobium and seems most closely related to D. gracilicaule and D. fleckeri. It resembles D. gracilicaule in habit but can be distinguished from it by its keeled leaf back (a character absent in D. gracilicaule) and the fact that its stems generally are smaller and more slender than those of the latter species. D. adae is a much more common species than D. gracilicaule in north Queensland. D. fleckeri also can be confused with it when out of flower, but it is distinguishable from it by being smaller, building up into multi-lead plants much more readily and occasionally producing aerial growths. D. fleckeri is a much rarer plant than D. adae.

It has slender stems a foot or more high, with 3 - 4 leaves near the top. The flowers appear in spring. These are fewer than in D. gracilicaule but they are much larger and pure white or greenish white in most plants, but some are that colour inside and lightly to heavily speckled with pink, green and brown outside. In either case they remain half closed and scentless on cold days and at night. However on warm days they expand widely and are beautifully perfumed. Some claim that this perfume is more beautiful than that of another white, mountain species - D. falcorostrum.

Natural habitat. North Queensland (Burdekin to Annan Rivers) chiefly above 2,500', on trees in mossy rain forest. It receives plenty of rain in the northern Queensland wet season while frequent fogs prevent it drying out for long periods in the dry season. It is most commonly collected from trees felled in logging operations.

Cultivation. (Sydney). Generally considered easy to grow and rather common in collections. Not cold sensitive and therefore can stand temperatures of 30°F. or less, for short periods. Requires 50% - 75% sunlight and less when being established. The most commonly used growing medium is tree fern blocks. Wood blocks and tea tree logs are too dry. It seems to establish itself quicker in pots of fir bark, but the risk of root and bulb base rot is much higher. Flowering is free and regular. D. adae is reluctant to make more than one lead but established plants can easily be encouraged to do so by back cutting. Three growths should be left on the forward piece and two or more on the back cut piece. Stems which no longer flower and are too old for back cutting should be removed.

Advantages. Compact growth, free flowering, easily grown, fairly showy and beautifully scented. A cool grower in Sydney.

Disadvantages. Unsuitable for shows etc., because of nocturnal flowering, few flowered racemes, unlikely to develop into a specimen plant without back cutting and unsuited to lowland tropical climates.

Hybridisation. Little used to date. Could be used to produce a perfumed flower, though this characteristic is likely to be recessive and the few flowered habit dominant.

Propagation. Division of multi lead plants formed by back cutting.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120.

GROWING PTEROSTYLIS (GREENHOODS) IN SYDNEY

S.C. Clemesha

Most growers of native orchids in Sydney and the rest of the south east of Australia with a similar climate, have at one time or another attempted to grow Pterostylis. While some success has been experienced, most have become discouraged through loss of plants from leaf rot. This problem can appear at any time during the growing season but is most common in the humid months of late summer and early autumn, and in periods of heavy rain. It first appears as rot patches and ends in the destruction of the rosette. Tubers are not directly effected but usually die through loss of food etc. Those which survive are unlikely to flower the following season and almost certainly are lost in a second attack. While some species were effected more than others, it soon became obvious that this problem had to be solved before one could be confident of being able to keep plants alive and increasing for any length of time. It took me quite a while to work out how to overcome it and most of the ideas in overcoming it were borrowed from others. To prevent rot one must stop pots from drying out too quickly and/or from becoming too warm. The easiest way to do this is to sink them to the level of the rim in garden beds or build up sand or soil around them. This is far more important in my opinion than all the other factors in cultivation. Acianthus and some species of Corybas respond favourably to this treatment as do some Caladenia species. Doubtlessly the list will be added to in time. The other important cultivation factors are set out below;

CONTAINERS - I prefer terracotta pots as they last better and are porous, possibly some moisture from the soil in which pots are standing seeps through. Plastic pots seem superior if pots are not stood in soil, because they do not dry out as quickly.

continued page 64.

Growing Pterostylis (Greenhoods) In Sydney Cont'd.

Tins are the same as plastic pots, drainage wise, but the rust layer destroys any root tip that comes in contact with it and plants increase is effectively slowed down.

POTTING METHOD AND COMPOST - The first step is covering the drainage hole with fibre glass fly screen to prevent the entry of undesirable insects and covering this with drainage crock or stones. Pour a quantity of water through to check drainage. Cover this with a layer of leaves or soil, to prevent sand from washing through. If I am potting dormant tubers as is normal at repotting time I use a mixture of sand (I prefer beach sand and have not tried others) and dry leaves from Eucalyptus trees or any other hard leaved tree. I never bother to try and find partly decomposed ones as the dry ones will decompose through the growing season and thus give the plants their food. I put a good layer of these on the surface of the pot as well as mixing the sand.

REPOTTING - Some growers do this annually, while others do not. At this time tubers that have formed too deep in the pot can be reset at more desirable levels and more leaves can be added to the soil. Lifting tubers and storing in a dry place is not very satisfactory and often results in considerable losses if tubers are not mature. Repotting should be undertaken after rosettes wither as most species are not dormant for long. All species of the single flowered group do not mind crowded conditions and large numbers of plants can be put in one pot. Tubers should be planted about ½" to 1" deep, depending on size.

WATERING - Plants like to be moist through the growing season and generally if the soil in which pots are standing is damp, then the pots are alright. I find little watering is necessary except in dry periods. In the rest period pots should be kept in the shade and it is not necessary to prevent rain from falling on them but no other watering is necessary. I have my plants divided into three groups according to watering, these are (1) Summer growers, which I try to keep moist all year, (2) Eastern Australian species. I allow these to rest from the time the leaves wither till late January. Usually a few early ones are up by this time, (3) Western species, from western N.S.W., South Australia and Western Australia. I lift these pots after leaves wither, unlike the preceding group and do not reset them till the first of March as they do like a longer dormant period.

I make no effort to keep rain off them and this apparently has no ill effect. I water them in prolonged dry periods.

SHADING - This is a most important factor and I think too much is better than too little. Plants receiving too much light become stunted and do not flower. Those receiving too much shade become elongated but this appears to have little harmful effect, but can be a nuisance if plants get too tall. Covering with hessian gives the correct amount of shading.

PESTS - Red spider and thrip are the worst offenders and effect the summer growing species most. The others largely avoid pests by coming up later. I find both can be eliminated by overhead watering of plants in the evening. This is necessary every evening till the pests disappear. Aphis and caterpillars are encountered at times and I crush the former with my fingers and remove the latter which happily are rather uncommon. I find the orchdis are sensitive to pesticide sprays and do not use them. Snails and slugs are easily destroyed with baits.

FEEDING - The use of rather weak doses of soluble fertilizers containing urea seems to result in better flowering in shy flowering species and larger tubers. I feed at the beginning of each month and do not feed plants which are close to flowering. At least some species increase better with feeding.

In treating the species I have growing I shall omit all members of the multi-flowered group as they are not doing as well as I would like them to. I am of the opinion that at least some species of this group (Pterostylis mutica, P. cycnocephala and the rufous group) do not like sand composts. The multi-flowered species do not produce the long white underground stems which give rise to plants forming up to five new tubers. Because of this, increase is very slow, except from seed and occasional losses are not offset.

TUBERLESS PLANTS - If the tuber is accidentally broken off in collecting, the tuberless plant will, in the great majority of cases grow and form new tubers even if collected late in the growing season.

THE SUMMER GROWERS - This is the least satisfactory group in Sydney because of the prevalence of pests in the greater part of their growing season and it appears to be too hot for them for too long a period of the year.

Pterostylis falcata is the second largest species of the genus and produces sickle shaped green and white flowers between September and December. Growth is vigorous but hampered by the above pests. It is dormant for little if any period and well suited to culture in areas cooler than Sydney. It likes heavy shade and occurs naturally in swamps of the higher ranges of N.S.W., descending to lower levels in Victoria and Tasmania.

P. alpina, P. cucullata, P. foliata, P. vereenae and P. furcata are dormant for at least six months of the year (or rather, are below ground for this period). Plants appear in late winter and grow quickly. Flowering occurs between September and January and plants wither soon after. They like plenty of shade and are hard to manage in the hotter part of their growing period.

Continued Vol. 3. No. 6.

THE ORCHADIAN

DECEMBER, 1969 PRICE: 30 cents PAGE 65.
VOL. 3. NO. 6.

Published by The Australasian Native Orchid Society

Patron:	Sir John Hall Best	Vice Presidents:	C.K. Ingram
President:	R.G. Napier		L. Bradford
Hon. Secretary:	H. Jay	Editor	M. J. Corrigan
Asst. Hon. Sec.:	A. Reeves	Asst. Editor:	M. Spence
Treasurer:	E. Marygold	Publicity:	W.H. Murdoch
Records Sec.:	D. Dawson	Immediate Past President:	E.G. Gordon

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical.

HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
31 DEC 1969

GROUP MEETINGS

Sydney Group: Meets on the 2nd Friday of each month at 8 p.m., in Room 2, Railway Institute, Corner Devonshire and Chalmers Streets, Sydney.
President: Mr. Harold Jay. Hon. Secretary: Margaret Spence, 11 Milham Crescent, Forestville, N.S.W. 2087.

Warringah Group: Meets on the 2nd. Thursday of each month at 8 p.m., in the Corkery Building, Stony Range Flora Reserve, Pittwater Road, Dee Why, N.S.W.
President: Mr. Keith Ingram. Hon. Secretary: Mr. Brian Taylor, 10 Naree Road, French's Forest, N.S.W. 2086.

Townsville Group: Meets on the 4th. Thursday of each month at 8 p.m., at the Adult Education Centre, Townsville, Qld.
President: Mr. Bob Smythe. Hon. Secretary: Mr. Don Wilson.

Victorian Group: Meets on the 1st. Friday of each month at 8 p.m. at the Royal Botanic Gardens and National Herbarium, Birdwood Avenue, South Yarra, Vic.
President: Mr. L.W. Raynes. Hon. Secretary: Mr. D. Cannon, 16 Bruce Crescent, Ferntree Gully, Victoria. 3156.

Newcastle Group: Meets on the 4th. Wednesday of each month in the John Young Community Hall, Thomas Street, Cardiff. N.S.W.
President: Hon. Secretary: Dr. I. Lewis, 132 Dilkera Avenue, Valentine, N.S.W. 2280

Darling Downs Group: Meets on the 3rd. Friday of each month at 8 p.m., at the Adult Education Centre, Toowoomba. Qld.
President: Mr. R.S. Hill. Hon. Secretary: Mrs. D. Williams, 101 Mackenzie Street, Toowoomba. Qld. 4350.

Members of the Australasian Native Orchid Society, travelling interstate or within their own state will be made most welcome at meetings of the above groups.

AUSTRALIAN NATIVE ORCHID BOOKS - NOW AVAILABLE

"A Guide to Native Australian Orchids" by Roger B. Bedford. 134 pages, 7 colour plates and 58 figures. An excellent work measuring 7½" x 10", in which the author states, "In this book I have attempted to describe all known Australian epiphytic orchids. Several species found on nearby islands that are politically part of Australia, such as Lord Howe Island, have been included." The text describes in plain terms the various orchid species, together with information regarding the type locality if known and cultural hints. At $8.50 per copy this work is worthy of a place in all orchid hobbyists libraries. Should you have difficulty in obtaining a copy, contact the publisher, Angus & Robertson Ltd., 221 George Street, Sydney.

"Orchids of Australia" by W.H. Nicholls. This magnificent work was mentioned briefly in The Orchadian, Vol. 3. No. 4. and since then your Editor has had the opportunity of briefly viewing this lifetime work. Whilst members tend to acquire most books on native orchids in time, this is a work that all should have at their disposal. Its 700 pages, 13" x 10", with 476 pages in full colour are a delight to the eye and will broaden the knowledge of all who obtain it.
Available from Thomas Nelson (Australia) Limited, 597 Little Collins Street, Melbourne, 3000, at $30 per copy. Don't miss it.

PTEROSTYLIS FOLIATA Hook. f. IN N. S. W.

W. Brinsley

It may not be widely known among readers that Pterostylis foliata Hook. f., has been recorded in New South Wales, the only other recording of the species being by J. A. P. Blackmore in The Orchadian, Vol. 2. No. 6. pp. 76-77.

The specimens located by Mr. Keith Giles at Batlow, in that area during 1962, had been identified by others as Pterostylis furcata Lindl., from which species P. foliata is quite distinct. While the reader was living at Bathurst, an orchid collecting expedition was organised near Mt. Canobolas, the party included Messrs. K. Ingram then of Bathurst, P. Althofer of Dripstone, F. and W. Giles of Springside, and their brother, K. Giles of Batlow.

During prior correspondence with Keith Giles, I had been informed that he would bring with him some flowering plants of P. furcata, a species I have been keen to secure in the fresh state, in order to make drawings of dissections. When the day of the hunt duly arrived and the specimens were presented, it was immediately obvious that the species was not P. furcata. After checking, the specimens were identified as P. foliata Hook. f., in the form once published by Nicholls as P. gracilis, later reduced to synonymy with P. foliata. One of Nicholls drawings is an exact replica of the plant then at hand. This and plants obtained later, grew and flowered well under cultivation, however, this orchid is not a particularly attractive species, being rather small of flower and neutral in colouring.

Pterostylis foliata differs from P. alpina and P. furcata in the smaller blooms, the different galea and column-labellum details, and in the noticeably glandular - rough stems.

Generally, fewer basal leaves are present than in the case of P. alpina, which also has more cauline leaves; those of P. foliata, despite its name, being only large bracts. Specimens taller than that illustrated are frequent, however all flowers seen by this writer have been similar in size and morphology to those shown.

A brief description of P. foliata, from New South Wales specimens, follows:

Pterostylis foliata Hook. f.

Plant very slender, 15 - 25 cm. or more high; stems often glandular-rough, cauline bracts large, 1 - 3 or more, often leafy. Flower solitary, pale green with dark brown markings and tints, particularly at extremity of galea, erect and narrow, about 2 cm. high from top of ovary to crest of galea. Dorsal sepal ± erect for basal 2/3 then curving forward to deflexed tip. Petals scarcely acute, almost as long as acuminate dorsal sepal. Lower sepals erect, united for about half their length, exceeding galea by about ¼ their length, slightly retracted across galea, filiform portions curving forwards well above galea. Labellum about 10-12 mm., rather broad, usually protruding through sinus of lower sepals, deflexed abruptly in anterior quarter, central longitudinal ridge prominent near apex. Column about 13 mm. upper lobes acute, lower lobes narrow, stigma prominent, broad elliptic or oblong. Basal rosette of 3 - 5 leaves or more, occasionally ascending the lower stem.

Batlow, Mr. K. Giles 23 - 10 - 64

This species has been confused in the past with P. furcata and P. alpina. Drawings of both these species from N. S. W. specimens are included as a means of comparison - see pp. 67-69.

W. Brinsley, P. O. Box 154. Ballina, N. S. W. 2478.

PTEROSTYLIS ACUMINATA VAR. INGENS Rupp IN N. S. W.

S. C. Clemesha

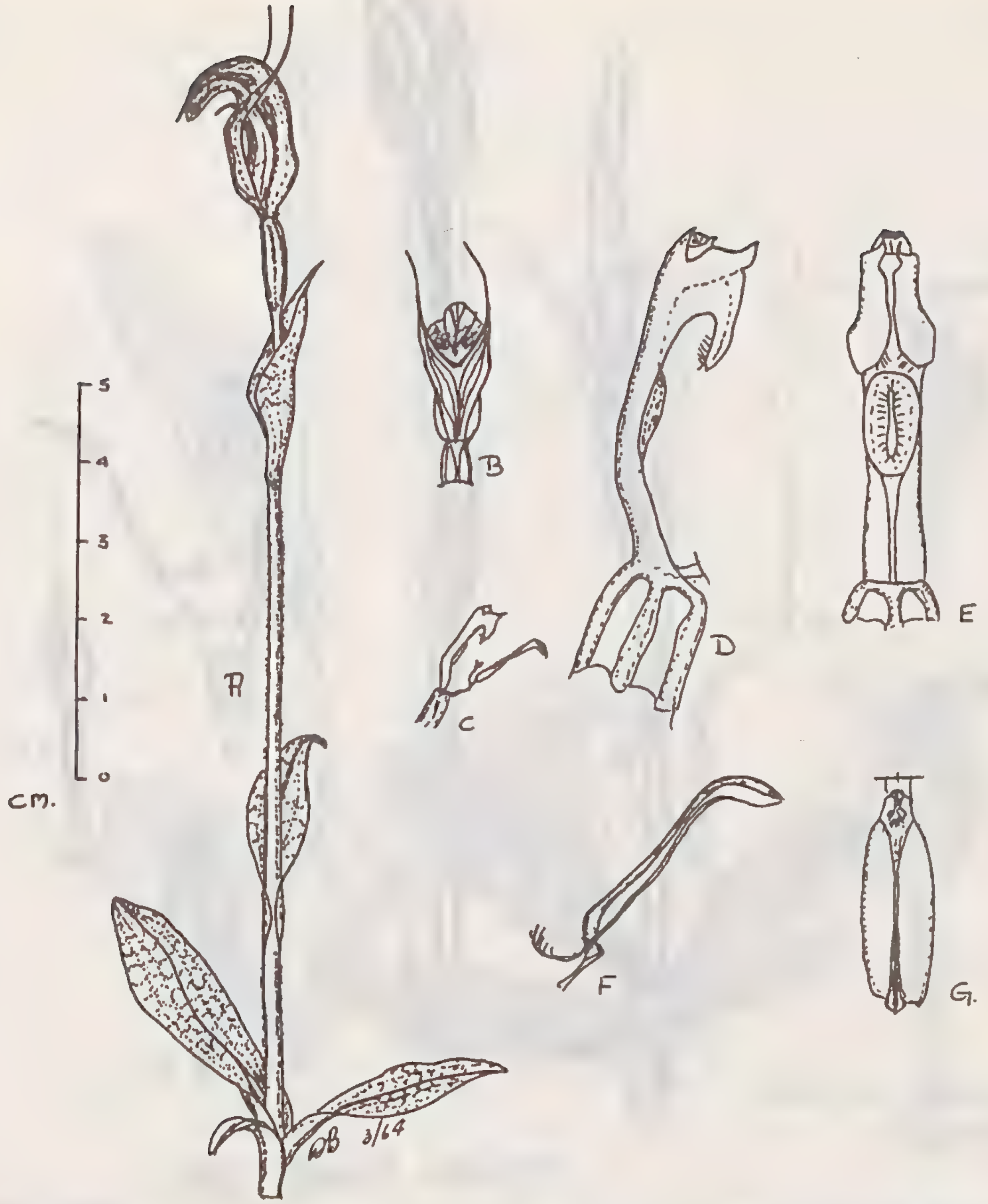
In recent years a number of orchid species that occur in eastern and northern Victoria have been found to occur in N. S. W. e. g. Cryptostylis hunterana, Chiloglottis cornuta, Corybas dilatatus, Pterostylis fischii, P. foliata and P. alveata. Therefore it is hardly surprising that the following plant has appeared also.

Pterostylis acuminata var. ingens Rupp, in Proc. Linn. Soc. N. S. W. 53:552 (1928), atque 58:228 (1933). Illustr., Nicholls, Orchids Aust. 1:5. 69, col. (1955). Coleman, Vict. Nat. 50t. 40 (1934). Nicholls, in Barrett, Sun Nature Book n. 5:38 (1934). Nicholls, Vict. Nat. 44:42 fig. e-f (1927) also 43:102 fig. 16 (1926). Green, Vict. Nat. 42:t. 5., fig. 1-2 (1925). Willis, Handb. Pl. Vict. 404 (1962).

W. H. Nicholls in his "Orchids of Australia" describes this species as "typically a robust, large-flowered plant (galea to 3.5 cm. long) than the common N. S. W. form of the species, from which it differs also in the pubescent labellum with blunt apex and in flowering time (at least three months later)".

This species flowers from September to November, whereas P. acuminata var. acuminata flowers from February to May. The N.S.W. collection of this plant was made by Mr. A. E. Logan at Carabost Creek, near Carabost (in the southern tablelands of N.S.W.) on the 2nd October, 1966, and is

continued page 75.



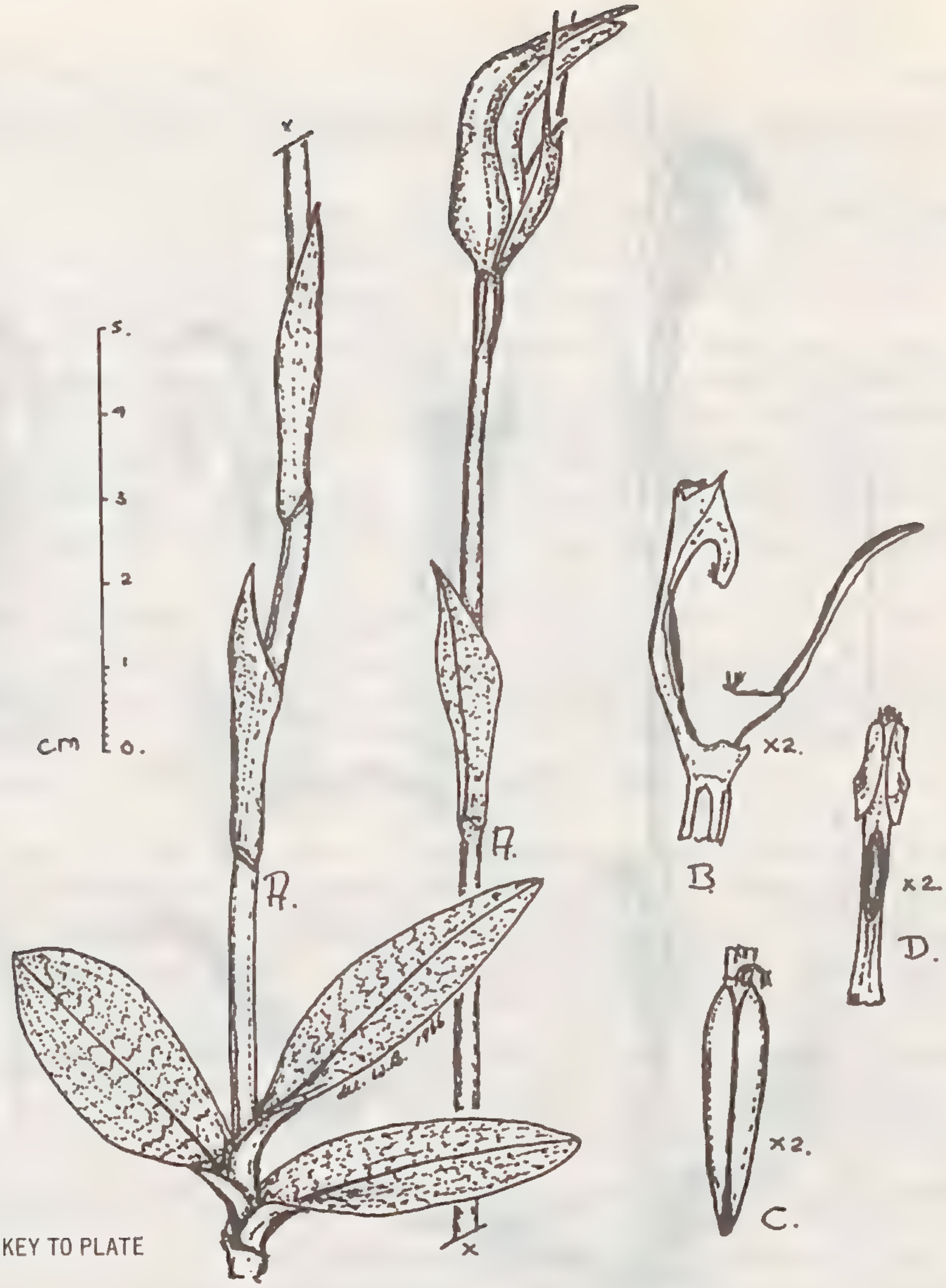
Pterostylis foliata. Hook. f.

PTEROSTYLIS FOLIATA - KEY TO PLATE

A,B,C To indicated scale.
D,E,F,G Greatly enlarged.

A RECENT COMMUNICATION FROM THE Dept. OF AGRICULTURE, N.S.W.

The specimen of a leaf of Dendrobium X delicatum submitted with your letter, was found to be affected with a fungal leaf spot disease.
The fungus observed was a species of Phyllostictina. This is a fungus commonly found causing leaf spots of several native plants including orchids, and other ornamental plants. Control of this disease can be difficult as it is possible for the fungus to infect a leaf and then remain latent for some time with no obvious external symptoms. By the time symptoms appear it is usually too late for control measures. If Zineb were to be applied to the leaves, however, the spread of the disease may be checked to some extent.



PTEROSTYLIS FURCATA - KEY TO PLATE

A. To indicated scale.
B,C,D Greatly enlarged.

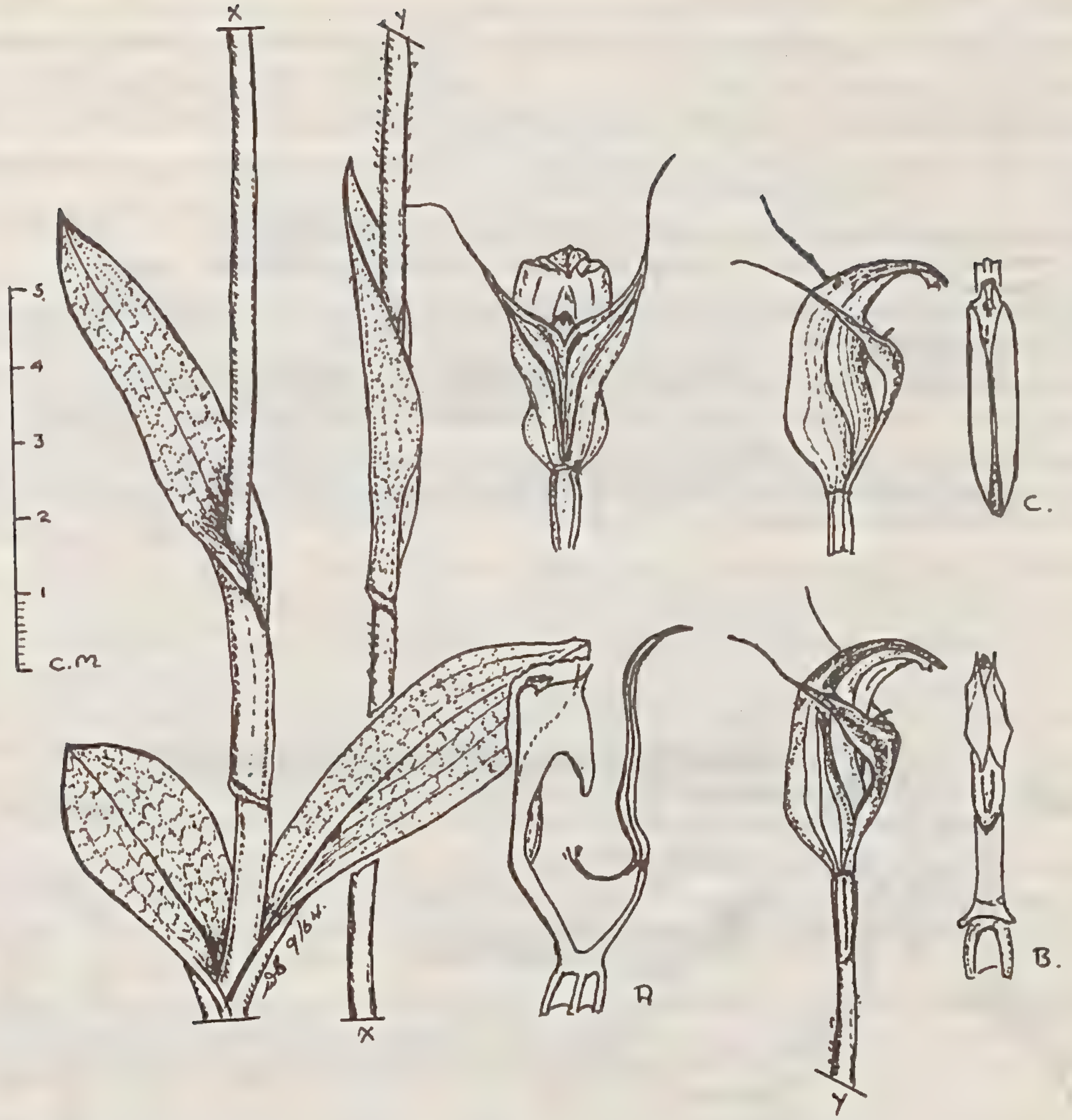
Pterostylis furcata Lindl.

ORCHIDS AND TREE FERN

S. C. Clemesha

Tree fern fibre has been widely used for the cultivation of epiphytic orchids in Australia and elsewhere for many years, because it holds an ideal amount of water (most of the time) and contains sufficient food materials to make feeding unnecessary. The water held compensates for the lower atmospheric moisture in the area where the orchids are cultivated as compared to their natural habitat. At times problems are associated with individual pieces of fibre, such as the fibre draining too fast or slow, and every now and then one finds a piece that plants are reluctant to attach themselves to. As orchdis are rarely seen growing on living tree ferns, many observers have concluded that this is because the fibre is too fresh and that it must not be used till it has had time to age, or been treated with lime. I have used fresh pieces without

continued page 69.



PTEROSTYLIS ALPINA - KEY TO PLATE

A. Column and labellum - side
B. Column - front
C. Labellum - above

A,B,C Greatly enlarged

Pterostylis ALPINA. Rogers.

To indicated Scale.

Orchids and Tree Fern. cont.

problems and am of the opinion that the difficult pieces may be too old and have built up toxic properties.

As I considered all my orchids mounted on fibre blocks hanging on wire frames to present a most untidy appearance I decided to try mounting some on living tree ferns, though I knew that most growers would consider this unlikely to work and at least one was prepared to argue strongly that it would not. All the plants I tried quickly put their roots into the fern trunks and as I tried more, found them to be successful. Only a few species, if any, will not be suitable for fibre culture.

continued page 73.

A.N.O.S. NEWSLETTER PROPOSAL

R.G. Napier

On the 21st October, your Council held a special meeting to discuss the response by members to Bill Murdoch's circular on the proposed A.N.O.S. Newsletter.

104 members returned their questionnaires - in round figures - 25% of the membership, of this number 76% indicated their approval of the issuance of a Newsletter by the Society, in addition to The Orchadian, 17% were against and 7% had no opinion.

With the above in mind, several alternative means of producing and financing the Newsletter were considered, these can be summarised as follows:-

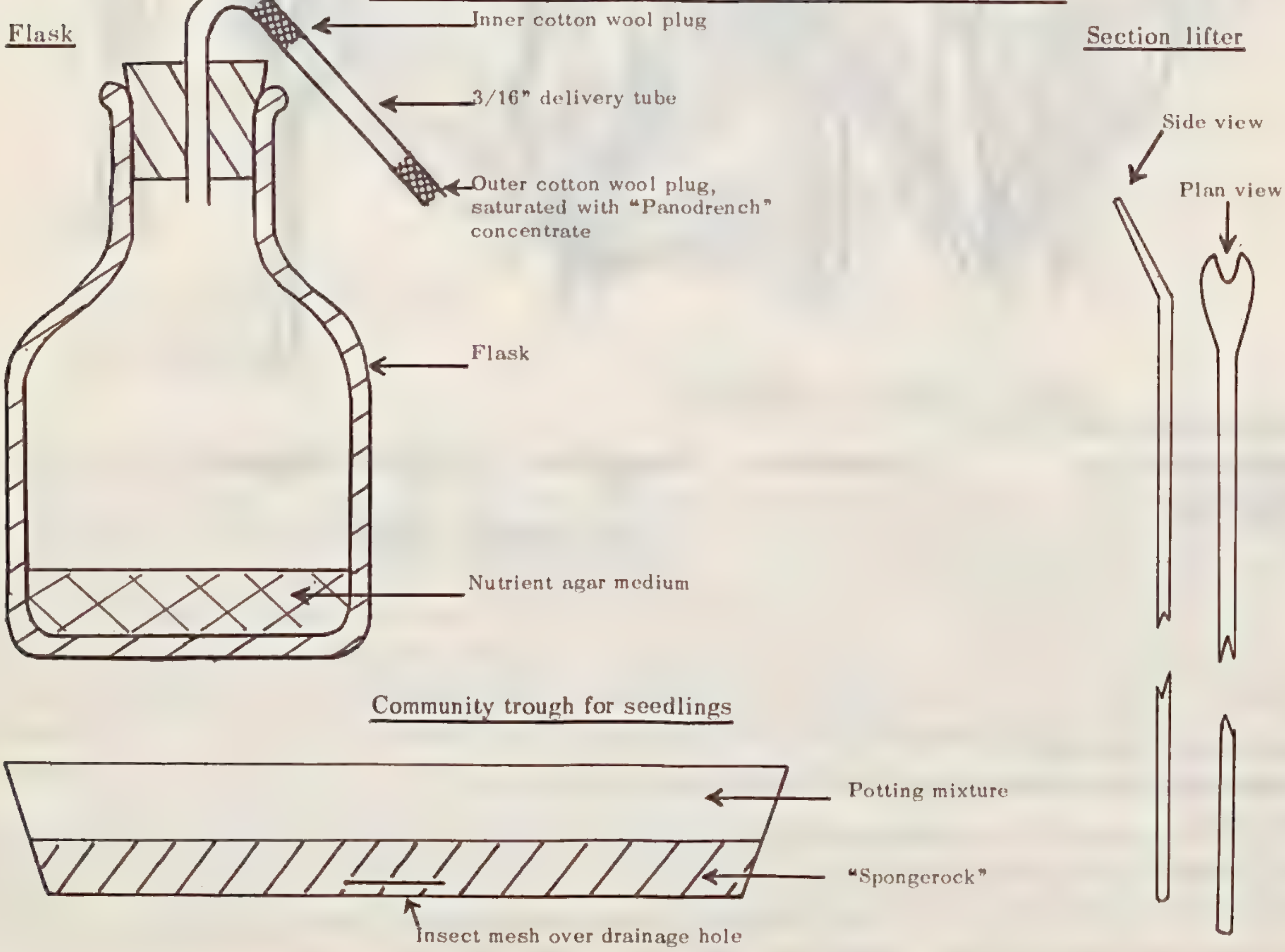
(a) Production of a Newsletter incorporating Bulletins at present issued by Groups and to be financed in part by the present cost of putting out the Group's Bulletins.
(b) A Newsletter to be financed solely by an additional subscription from members.
(c) A Newsletter to be financed from Society funds and distributed to all members.
(d) A Newsletter to be incorporated into The Orchadian, under the control of a Sub-Editor responsible to the Editor.

Proposition (a) was felt to be impractical and was rejected, especially as Group's indicated their opposition for various reasons. In the end it was decided, on the score of finance (both (b) and (c) would entail additional or higher fees from members) and the availability of material for publication, that we would adopt proposal (d).

Bill Murdoch has put considerable time and effort into this study (in addition to the sterling work he is doing as Publicity Officer of The Society) and I would like to take this opportunity to thank him for his unremitting work.

R.G. Napier

ASYMBIOTIC GERMINATION OF NATIVE ORCHID SEED



ASYMBIOTIC GERMINATION OF NATIVE ORCHID SEED

P. Fetherston

The following paper is an edited version of a lecture given to the Sydney Group of the Australasian Native Orchid Society by Peter Fetherston.

Members should take particular care in the choice of breeding stock as it is most important - do not make poor speculative crosses. Self a good clone rather than waste time "crossing" just for the sake of it.

Do not spoil a good hobby by commercialising your efforts. If you are looking for a lucrative investment in cash, go elsewhere.

Broaden your general range of growing experience and do not confine your efforts to native orchids exclusively. Techniques gained from experience with exotics will greatly improve results with native orchids.

Gather pods just prior to bursting, and fold in paper (notepaper, or even newspaper is suitable) to exclude dust. Label package immediately, before details are forgotten and store in a cool dry place. Never wrap seed in plastic or cellophane, as it will "sweat" in such conditions. Sow the seed as soon as possible after harvesting; not only is it less likely to be contaminated, but viability and germination will be much better.

CONTAMINATION AND INFECTION

Although the sowing process is not a danger time for viral infection, it is a good general rule to exclude all tobacco preparations (and all smokers) from proximity of any orchid material, as prevention of infection is the only defence, there being at this stage no successful treatment for viral infection of plant tissue.

Yeasts and fungi present the greatest problem at this stage, bacteria seldom cause much bother, as the medium is not ideally suited for their growth. Fungi destroy the orchids by sheer mechanical overcrowding - "choking", and by competing with them for available foods (especially sugars) in the medium. Metabolic byproducts from the growing fungal mass will inhibit or destroy any orchid plants thus overrun.

Dust carries fungus spores, and unless blocked, will fall on to the flasks and equipment. It may efficiently be excluded by making a box (say about 1' high x 2' deep x 3' wide) to enclose all equipment and operator's hands during sowing process. Materials can be quite elaborate (ideally plastic, or plastic surfaced, with perspex top and front, with holes in front to admit hands) or quite simple, even a cardboard packing case with a polythene "apron" in front can suffice. Any structure which will exclude dust and air movement can serve the purpose.

FLASKS

Erlenmeyer flasks, as commercially used, are not essential. Gin or whisky bottles have been successfully used, as have cream jars and ordinary 8 oz. medicine bottles. The container should be fitted with either a rubber bung or an autoclaveable plastic screw cap. Put a hole through the cap or stopper to admit a short length of 3/16" delivery tube (about 4"), bent and plugged with cotton wool as shown.

It is essential that there be no space between the air tube and the cap. A suitable seal should be placed at this spot, "Araldite" can be used for this purpose.

HYDROCHLORITE SOLUTION FOR DECONTAMINATION OF SEED.

Bleaching powder	10 G. (Calcium chlorohypochlorite)
Water	120 mils.

Add powder to water in a glass or plastic container, stir thoroughly to break up any lumps, and allow to stand for about 10 minutes. Strain (preferably through filter paper).

THIS SOLUTION MUST BE USED WITHIN A FEW HOURS OF PREPARATION, AS IT IS NOT STABLE. MAKE UP FRESH EACH TIME. IT IS ESSENTIAL THAT FRESH BLEACHING POWDER BE USED, AND THAT THE BOTTLE OF BLEACHING POWDER BE KEPT TIGHTLY SEALED TO PREVENT DECOMPOSITION.

CULTURE MEDIUM (Modified Knudsen "C").

Calcium Nitrate $Ca(NO_3)_2.4H_2O$	1.0 G.
Monobasic Potassium Phosphate KH_2PO_4	0.25 G.
Magnesium Sulphate $MgSO_4.7H_2O$	0.25 G.
Ammonium Sulphate $(NH_4)_2SO_4$	0.5 G.
Sucrose (Table Sugar)	20.0 G.
Iron Chelates	0.042 G.
Magnesium Sulphate $MnSO_4.4H_2O$	0.0075 G.

continued page 72.

Asymbiotic Germination of Native Orchid Seed. cont.

Vitamin C	125 mgm.
Vitamin B_1	2 mgm.
Nicotinic Acid	1 mgm.
Indole Acetic Acid	1 mgm.
Coconut Milk	200 mils.
Banana (Thoroughly mixed in "Blendor Mix")	1.
Agar	10 to 12 G.
Water to	1 litre

Adjust pH to 5.2

It will be seen that this is essentially Knudsen's "C" formula, with several additives; additives which, in my experience, have improved germination and growth rate. The additive's however, are not essential, and if difficulty is encountered in obtaining them, they may be omitted. Banana seems to be the most important "extra" ingredient, and should be retained in all cases. Coconut milk has a pronounced stimulating effect with certain genera, especially Cattleya and Sarcochilus, but seems to produce a slower initial development with some Dendrobium sp. The vitamin C and vitamin B_1 may be obtained by using commercial vitamin tablets or ampoules but do NOT use multivitamin preparations, as some vitamins will inhibit growth. The indole acetic acid and the nicotinic acid may be stored as "stock" concentrated solutions in alcohol (any alcohol will evaporate during the autoclaving of the flasks). The agar concentration is stated as 1% to 1.2% as there is much variation in the gel produced by different batches of agar. There is no need to use more than is required to produce a fairly firm gel. Iron chelates have been used in lieu of ferrous sulphate, being more stable.

Add the solids to the liquids in a saucepan and boil gently for about 10 minutes and check pH of the mixture, using suitable indicator paper (I find "Lyphan" the most convenient). If necessary, adjust pH to 5.2 (a few drops of Ammonia solution, or Potassium hydroxide solution if pH is below 5.2: or a few drops of diluted hydrochloric, nitric, or phosphoric acid if pH is above 5.2. CAUTION...ALL THESE ACIDS AND ALKAIS ARE POISONOUS AND CAUSTIC...IF SPILLED, FLOOD AREA WITH WATER, AND NEUTRALISE.

Pour a little of the solution in each flask (to about ¾" to 1" deep on the bottom) cap the flasks and place in pressure cooker, raise pressure slowly, and maintain at pressure (15 lb. p.s.i.) for about 20 minutes, then turn off heat and allow to cool slowly (do not attempt to cool rapidly, or the flasks are likely to boil or blow out the cotton wool "plugs"). When cool, the flasks may be removed from the autoclave, and the medium allowed to set. Then place one or two drops of a suitable fungicide (e.g. "Panodrench" concentrate) on the end of the "breathing tube" to saturate the cotton wool plug at the end.

The flasks are now ready for sowing. Sterilize similarly in pressure cooker a few screw capped bottles of water, for use in the sowing process.

Two days before sowing, place the seed in a dilute (2%) sugar solution in a small phial, shake to disperse, cover, and set aside in a warm place. This will initiate growth of fungal spores present, and render them more susceptible to the hypochlorite fungicide, (spores are far more resistant to fungicides than are fungi in active vegetative growth). This preliminary soak also has the effect of reducing damage by the hypochlorite to the actual orchid seed especially with old or dry seed.

Prepare seed sowing area, a clean table top, with cabinet and all necessary implements on it. Close windows and doors, and take any steps necessary to shut off draughts, as air carries dust and dust carried potential contamination. Prepare the bleaching powder solution. Fill a "Jetspray" or similar suitable atomiser, or flysprayer (preferably of non metallic construction, or corrosion will rapidly result) with a 1 in 4 solution of "Milton". Also, fill a large tumbler with more of the same solution (1 in 4 "Milton") and in it immerse completely (with all air bubbles excluded) several rubber-teated glass medicine droppers. Place the flasks, the tumbler of droppers, and an empty tumbler for "slops" in the cabinet and spray with the atomiser (with "Milton" 1 in 4) to wet thoroughly all surfaces.

Carefully withdraw as much as possible of the sugar solution from the seed with a medicine dropper, leaving the seed as a sludge on the bottom. Now fill the tube almost to the top with the bleaching powder solution, shake to disperse seed and stand it in the cabinet. Allow seed to remain in hypochlorite solution from 5 to 10 minutes ("clean" seed will require less time than grossly contaminated seed; the longer the exposure of the seed to the hypochlorite, the greater will be the reduction or destruction of viability of the seed). Again using a medicine dropper, draw off the supernatant liquid, leaving a slurry of seed in the bottom of the tube. This last step and all succeeding ones are to be carried out within the cover of the protective cabinet. Carefully

continued page 73.

Asymbiotic Germination Of Native Orchid Seed. cont'd.

uncap the bottle of sterilized water, and pour a little into the tube containing the seed (immediately re-cover the water). Remove one of the droppers from the glass of "Milton" solution, and squirt out any solution remaining in it. With the dropper, swirl the seed into suspension in the tube and withdraw some of the suspension (about half a dropper full). Carefully removing the stopper from a flask, now squirt the contents of the dropper on to the agar surface. Re-stopper the flask, and repeat with more seed-suspension and more flasks until all the seed has been sown. At no stage of the operation should the glass tube of the dropper, or the "inside" portion of the flask-stopper, or the top of the flask be touched with the hand, lest contamination result.

The flasks should now be set aside in a warm place (70° to 80° F.) and covered so as to exclude light, for a period of two weeks, after which, remove the cover and place in a light place. A suitable cabinet, or box, in which to store the flasks can be maintained within the right temperature range quite effectively and inespensively by the use of a carbon filament "incubator lamp", which only burns 80 watt, but provides adequate heat for this purpose. The use of overhead lighting ("Growlux" fluorescent tube type) to give a 16 hour "day" will also improve growth rate, but is not essential. An excellent description of such a cabinet is to be found in the "Australian Orchid Review", Vol. 13. No. 1.

When plants are sufficiently matured to be planted out from flasks, (usually 12 to 18 months from sowing, and preferably in the late spring to late summer period), this operation may be undertaken.

Do not attempt to "wet" plants when removing, or to "wash" them out of the flask. With a minimum of practice, the plants may easily be removed with a suitable "section lifter" (which may be made from 1/8" diameter brass rod, hammered out at end, and shaped as illustrated). The design may be varied and several different shapes made to suit individual requirements). Plant out the seedlings in troughs or "planters", (preferably about 9" x 12" at least, as small containers tend to dry out too rapidly), into a mixture prepared as follows;- sift charcoal through a ¼" mesh retaining only portion passing through; then sift out the "dust" with a fine (about 1/16") mesh - a plastic flour sifter, or insect screen will suffice, and reject the portion passing through. Similarly prepare some peat moss, and "fine" fir bark, rejecting both the "dust" and the pieces greater than will pass the ¼" mesh. Remove the "dust" from some "Sponge Rock" with the fine mesh seive and reject screenings. Mix equal portions (by volume) of these four prepared ingredients; charcoal, peat moss, bark and "Sponge Rock". Moisten thoroughly, and place in troughs over layer of "Sponge Rock" (as illustrated). Carefully remove plants from flasks, remove as much adherent agar gel as possible without damaging plants, plant out into troughs, setting plants closely together, not attempting to break up all clumps, as smaller plants thrive best in groups.

The plants are mist sprayed to thorough saturation with a suitable fertilizer ("Zest", "Aquasol" etc.) at half normal strength, i.e. ½ teaspoonful per. gallon with the addition of "Formula 20", and "Phaltan" (2 teaspoonsful / gallon). The plants are now kept in glasshouse conditions at high humidity and good ventilation (the importance of ventilation cannot be overstated; stagnant air and inadequate ventilation cause possibly more failures with plants at this stage than does any other factor) with spray-fertilizing as above twice weekly. After about 1 year in "communities" the plants are usually ready for planting out in individual containers and treated accordingly.

Recommended reading:- "Home Orchid Growing" - R. Northern
"Raising Cymbidiums from Seed in South Australia" - G.F. Barton and R.P. Thompson, A.O.R., Vol. 13. No. 1. March, 1966.

Peter Fetherston, 18 Barker Road, Strathfield. N.S.W. 2135.

Orchids and Tree Fern cont.

Growing plants on tree fern has certain advantages and disadvantages. The main disadvantage is that plants are not readily portable and cannot be taken to orchid meetings etc. The main advantages over fibre block culture are - (1) the natural appearance, (2) the problem of over wet blocks does not occur, as tree fern trunks drain evenly and well. Naturally the part nearest the ground is damper and orchids requiring such positions can be placed there. Whilst tree fern trunks are dry by nature, orchids on them require as regular watering as on any other host. Feeding is not necessary as the fibre provides all the needs the plants require. Species from the following genera are growing on my ferns, though naturally, Sydney's winters prevent some more tropical genera from being tried - Dendrobium, Bulbophyllum, Liparis,

continued page 74.

Orchids and Tree Fern cont.

Sarcochilus, Eria, Pholidota. I am trying miniature Cymbidiums, C. suave and Paphiopedilum species also, but as they have only been there a short time it is too early to draw up any definite conclusion. The last of course, are only in damp situations near the base of the ferns. It is interesting to note in Rupp's Orchids of New South Wales, that Cymbidium suave is occasionally found on tree ferns.

All tree ferns are protected plants, so they must be raised from spores, or less desirably, be obtained from nurseries where they may be expensive and perhaps been sold to the nursery by unscrupulous people. All species seem to grow about four inches a year in trunk height, in good conditions. Frequent removal of fonds before they wither, retards plants rather than hastening growth. Frequent watering as occurrs when orchids on them are sprayed, is the best stimulus for growth. Unfortunately landscape gardening trends at present have lead to the appearance of tree ferns in such exposed dry places as rockeries. This is almost as silly as growing cacti in ponds with water lilies.

As my knowledge of the tree ferns occurring in North Queensland is rather vague, I will not discuss the endemic species of that region.

Cyathea cunninghamii, 'Slender Tree Fern', Vic., Tas., & N.Z. Has a beautiful spread of fronds and a tall, slender trunk. I have had no first hand experience with the species at all, but presume it would have similar uses to C. leichhardtiana.

C. marcescens, 'Skirted Tree Fern'. Very rare and confined to Victoria. I have not had any first hand experience with it either, but presume that if plants of it could be obtained by raising them from spores, they could be used as C. australis.

C. leichhardtiana, 'Prickly Tree Fern', eastern Vic. to Qld., in rain forests, but less frequently seen than C. australis and Dicksonia antarctica. It also is less easily grown, requiring more protection and watering and less likely to survive careless transplanting than these species. Rarely seen in gardens for these reasons. Its fronds are attractive, but the trunk is too slender to be of much use, however, orchid species that do not mind dry blocks of wood etc., will do well on the species if watered, e.g. Dendrobium aemulum.

C. cooperi, from N.S.W., chiefly northern, and Qld. Though not found, or if so, rarely, near Sydney now, this plant is common there in gardens where easily identified by its slender trunk which bear scars from where the old fronds have fallen. Apparently easier to grow than C. leichhardtiana and possibly growing faster in height than other species. My plants of this species are only germinating spores, so I have had no experience with growing orchids on it but imagine it would have similar uses to C. leichhardtiana.

C. australis, 'Rough Tree Fern', 'Hill Tree Fern', ''Hard Tree Fern', and 'Black Tree Fern'. Tas. to Qld., and most common in the south, however quite common throughout N.S.W., but rare if present in the tropics. Very hardy and persisting for many years in cleared paddocks, but when I cut the top off the specimen in cultivation at my old address, prior to moving, I had great difficulty in saving it. The fronds frequently drooped and I feel that the only reason that I saved it was because it was more robust than smaller specimens. Even now it looks very untidy with numerous stunted fronds, but should improve next season. This species is quite common in Sydney gardens where when established it is tolerant of dryer positions than the other species, though not for over dry positions, and happier with more water. Unlike all so far, this species is definitely useful for orchids. It is particularly useful for species which will not grow on blocks of wood well, yet requires perfect drainage and a thorough dry-out, between waterings, e.g. Sarcochilus ceciliae, Laelia flava, L. cinnabarina and the Mexican Laelias. Also useful for more average species but unsuitable for damp lovers such as the Liparis spp., Sarcochilus hartmannii and S. fitzgeraldii which do well on Dicksonia antarctica.

Dicksonia youngiae, northern N.S.W. to north Qld. My experience with this species is quite limited. My own specimens are only germinating spores at present, making their first fronds. The only other two I have seen were about three feet high and very slender. I know they grow much higher than this, but unless they get quite a deal stouter, which would seem doubtful, this plant would be no more useful than Cyathea leichhardtiana.

Dicksonia antarctica, 'Soft Tree Fern', 'Brown Tree Fern'. Qld., (Bunya Mountains) southwards, N.S.W., Vic., Tas., and formerly S.A. where now extinct. A common species like C.australis and often growing with it. Favouring wetter positions than that species and consequently a good plant for over-wet positions, but easily grown in more normal sites where watering is frequent in the warm weather, as is necessary when orchids are growing on its trunk. If the top portion of the trunk is cut off the plant will grow again easily, provided of course that stem roots are present. This most attractive fern is easily distinguished from the Cyathea species even at a small stage by feeling the frond base. If smooth, it is Dicksonia antarctica and if rough, pimpled, or bearing spines it is not. This is a very useful method of identification, especially when a mixed pot of young plants are being raised. This species often forms very massive trunks and falls over, under its own weight. Often when this happens, the top merely turns upright and

continued page 75.

PRESIDENT'S REPORT

This is the last report that I will make to you as President, and I am very happy to say that our Society continues to move forward. The advent of the 6-th World Orchid Conference has made it a most exciting year. All the members of the Council have worked hard in their respective functions with of course the greatest effort being put forward by Murray Corrigan as Editor of The Orchadian and Bill Murdoch as Membership Organiser. Bill has done a lot of extra travelling in his drive to form new Groups.

The attendance at Council Meetings was as follows: Eric Gordon 12, Harold Jay 12, Murray Corrigan 12, Bob Napier 11, Bill Murdoch 11, Alan Reeves 10, Doug Dawson 10, Eric Marygold 9, Steve Clemesha 9, Keith Ingram 7.

It is most unfortunate that Keith Ingram is unable to attend all meetings as his duties with the Education Department necessitate him being away from Sydney quite often at the time of Council meetings.

The membership of the Society has again increased, and at the end of the Society's year we had 496 fully paid members. The Groups I mentioned in my report last year have been active through the year and a new one has been formed in Toowoomba.

Owing to the fact that our Editor was Secretary to the 6-th World Orchid Conference Working Committee and to the shortage of suitable material only four issues of The Orchadian were produced during the year, however, there were 52 pages of material published, including the description of two new species, mention of one species new to N.S.W. and one new to Australia. New synonyms were given for eight species and a new variety was named. In addition to this, thirteen drawings of orchid species appeared.

Another big job accomplished during the year was the production of the 12 page Consolidated Index to Vols. 1 & 2 of The Orchadian. Murray Corrigan and Don Barnham co-operated in this work and we have to thank Don in particular for an outstanding effort. He listed the whole of Vol. 2 in a short time without a single error, in fact he drew attention to some anomalies in nomenclature that he found.

We were able to stage a very high grade non-competitive exhibit at the 6-th World Orchid Conference Show. This consisted of two stands, one being 16' x 8' and the other 10' x 5'. With the help of members from many areas we were able to show a magnificent range of our Native Orchids which received a great deal of attention from overseas visitors. I would like at this stage to thank all those members who gave their services and loaned their plants.

Finally I have to say that I have enjoyed my three years as your President and I want to thank those who have worked so hard in their various jobs during this time. So, once again I wish you all, good luck with your orchid growing.

Eric Gordon, President. Australasian Native Orchid Society, 1966 - 1969

Pterostylis acuminata var. ingens Rupp, In N.S.W. cont.

now housed in the National Herbarium. This plant should be looked for in other areas in the south, particularly the south coast ranges.

P. acuminata var. ingens is a rare plant, being found only occasionally in its home state of Victoria. Here most collections have been made in the east, though it also has been found on the south-west coast at Portland. A solitary well preserved specimen from Port Elliot district of South Australia is in the Melbourne Herbarium. It also has been recorded from Tasmania (Mt. Barrow Road).

The possibility that this plant is specifically different to P. acuminata cannot be ignored. There seems little probability that any other Victorian Pterostylis not yet recorded in N.S.W. will be found there, although P. robusta and P. vittata are probabilities for the south west. However, the excessive overclearing of that region has considerably reduced the likelihood that these plants will ever be found there.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills, N.S.W. 2120.

Orchids and Tree Fern cont.

away it goes again. This plant is easily the best one for growing orchids on as more can be fitted on to one trunk, and you can attach them right up to the base of the fronds. Through the pressure of room on my few specimens I have even put them above the lowest fronds. It is possible to place orchids right up to the fronds on all tree ferns, however, Cyathea species are a little dry near the fronds for orchids other than D. aemulum.

Todea barbata, 'Austral King Fern'. All states except W.A. Not a tree fern actually, however a limited number of orchids could be grown on the butts of old specimens, though they would not

continued page 76.

THE AUSTRALASIAN NATIVE ORCHID SOCIETY

STATEMENT OF RECEIPTS AND PAYMENTS

GENERAL ACCOUNT

	1968/69 $	1967/68 $		1968/69 $	1967/68 $
To Membership subscriptions	679.25	483.90	By rent for meeting	4.00	-
" Bank Interest	40.64	41.12	" printing & stationery	128.60	71.56
" Donations	12.00	10.00	" affiliation fees	20.00	
" Sundry Income	1.00	3.00	" Insurance	-	8.44
			" Petty cash expenditure incl. postage	97.05	48.47
			" Prizes	14.20	4.00
			" Advertising	15.00	38.00
			" Envelopes, newsletter	71.13	
			" Group expenses	157.20	
			" Sundries	31.80	
			" Excess of receipts over payments	193.91	367.55
	732.89	538.02		732.89	538.02

PUBLICATION FUND ACCOUNT

	1968/69 $	1967/68 $		1968/69 $	1967/68 $
To Members subscriptions	685.00	487.50	By Printing etc. (Vol. 2 No.II to Vol. 3 No. 2)	1033.05	483.56
" Donations	36.40	38.15	" Folders	32.09	27.28
" Sundry Sales	46.55	82.48	" Binding Charges	92.50	148.25
" Binding and sale of bound "Orchadians"	404.20	339.60	" Back Issues	346.02	595.40
" Excess of payments over receipts	531.25	366.47	" Petty cash expenditure and postage and mailing expenses	199.74	46.51
			" Typing	-	13.20
	1703.40	1314.20		1703.40	1314.20

RESEARCH FUND

	1968/69 $	1967/68 $		1968/69 $	1967/68 $
To Balance carried forward from previous year	1108.41	888.60	By expenses in connection with Sarcanthinae publication		
" Sale of "Sarcanthinae" publication	472.50	759.00	Printing & Associated Costs	187.37	410.50
			Folders	-	44.97
			Commission	50.00	50.00
			Postage	26.97	11.22
			Advertising	-	22.50
			Balance carried forward	1316.57	1108.41
	1580.91	1647.60		1580.91	1647.60

E. MARYGOLD
Hon. Treasurer

E. GORDON
President

STATEMENT OF FUNDS

	1968/69		1967/68	
Balance at Bank at 30th June		$1694.46		1823.64
Comprising				
Balance on Research Fund		1316.57		1108.41
Credit in General Fund	1966.06		1772.15	
Debit in Publication Fund	1588.17	377.89	1056.92	715.23
Available Funds		$1694.46		$1823.64

I have examined the books of the Australasian Native Orchid Society and report that the above Statement of Receipts and Payments is in accordance with such books.

F. WAKELEY, A.A.S.A. A.C.I.S.
HONORARY AUDITOR

Orchids and Tree Fern cont.

look very attractive there as the butt is rather stump-like and lacks the grace of a true tree fern. Its roots were once used to a slight extent for potting Cattleya species etc., however the difficulty of obtaining these, and the advent of easier-to-get materials ended this. Platycerium grande and P. bifurcatum (Staghorns and Elk horns) also suffer at the hands of orchid growers, though orchids will grow satisfactorily in living specimens and they, like Todea, will grow satisfactorily from spores in the manner described later on in this paper.

continued Vol. 3. No. 7.

THE ORCHADIAN

FEBRUARY, 1970 PRICE: 30 cents PAGE 77.
VOL. 3. NO. 7.

Published by The Australasian Native Orchid Society

Patron: Sir John Hall Best
President: R.G. Napier
Hon. Secretary: H. Jay
Treasurer: E. Marygold
Records Sec.: D. Dawson
Vice Presidents: C.K. Ingram
L. Bradford
Editor M. J. Corrigan
Asst. Editor: M. Spence
Immediate Past President: E.G. Gordon

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical.

NATIONAL HERBARI
LIBRARY
ROYAL BOTANIC GAR
STH. YARRA, S.E.1, V
10 APR 1970

MEMBERSHIP RENEWAL.

Members are again reminded that annual subscriptions to The Australasian Native Orchid Society, fall due on the 1st of July each year. Is your subscription overdue? Check your receipts, and if you have been neglectful please pop your cheque in the post straight away.
Post to A.N.O.S. at P.O. Box C 106, Clarence Street, N.S.W. 2000. A receipt will be issued by our Hon. Treasurer. Remember his duties are honorary and don't expect your receipt by return mail. From time to time, members and groups have complained that money has been forwarded without receipts being received and in some instances members have complained that the Society's claim that they were unfinancial was incorrect as the money in question had been paid in at group meetings for subsequent forwarding to the A.N.O.S. Treasurer. In the two recent cases, long and thorough investigation revealed that the money had not left the group. If you have any doubts regarding your financial membership of A.N.O.S. please drop a brief note to The Society, setting out complete details, including cheque numbers and we will advise you of the position.
Every letter received is read and discussed at Council meetings and the appropriate action taken by a member of your Council. Please remember that whilst you read this your Editor, President, Hon. Secretary and Treasurer, among others, are hard at work in their free time running our Society.

ADDENDUM TO "ASYMBIOTIC GERMINATION OF NATIVE ORCHID SEED"- Vol. 3. No. 6. December, 1969.

Readers should make the following alterations to the above article:
Page 71 - Culture Medium (Modified Knudsen "C"). Last line of page should read ;
Manganese Sulphate $MnSO_4.4H_2O$ .... 0.0075 G.
71 - Hypochlorite Solution For Decontamination Of Seed.
72 - Caution... All These Acids And Alkalis .... etc.

A.N.O.S. NEWS -

The following is an extract from a letter from the President of the Australian Orchid Council, Mr. W. Smoothey, to the President of A.N.O.S. Your Council would like to hear your views on this proposal.
"You may have read in the December 1969 issue of the Australian Orchid Review a small item on the matter of policy that I will be pursuing as President of the Australian Orchid Council.
This involves the tackling of the problem of conservation of our indigenous orchids both actively and passively. I will be taking up with the constituted authorities the matter of -
(i) preserving of the existing plants;
(ii) re-establishment of plants in selected areas;
(iii) prohibition of the sale of native plants unless they are established;

continued p. 78.

A.N.O.S. News - cont.

(iv) dissemination of seedlings from superior types of our native species.
It seemed to me that we would have so much in common with the aims of your Society and the Australian Orchid Council that we should have a common policy in this matter. I am therefore most anxious to hear your views on this matter and to see whether or not you agree that we might explore the possibilities of advancing these ideas in New South Wales with the intent that they might be then pressed so far as other states are concerned. Would you be kind enough to let me have the views of your Society in this matter and especially whether any contribution can be made by way of working towards the re-establishment of plants in selected areas."

A.N.O.S. NEWS - SYDNEY GROUP.

The guest speaker for November was Mr. Ron Lin, who gave a very interesting and instructive discourse on the use of charcoal as a growing medium for orchids. This lecture is printed for the benefit of all members.
Mr. Lin's method was illustrated with colour slides, and, whilst these mainly dealt with Vanda and other exotic species, it was advised that excellent results could be obtained with many of our native orchids. Three very healthy hybrids of D. kingianum were exhibited growing in charcoal only.
Mr. Lin pointed out that the main reasons for repotting were; 1. The plant had become too big for the container, or; 2. The compost had deteriorated.
He had experimented with fibre and various barks, which he found were suitable for approximately two years, then rapid breakdown of the medium produced a detrimental effect on the root growth of the plant. He mentioned that an orchid needs time to readjust from repotting, and generally speaking, after a period of two years the plant was just beginning to recover.
With these points in mind, Mr. Lin said that he had started looking for a new growing medium which would not deteriorate in such a short time and one result of his experiments proved that charcoal was the material for which he had been searching.
The advantages he had noted were; 1. The results were good healthy plants, with vigorous root action. 2. Charcoal did not deteriorate quickly and a plant potted in charcoal could be expected to develop for eight years or more. 3. The material was very easy to use. 4. Charcoal was easy to obtain and cost very little.
The method of potting involved breaking the charcoal into medium sized pieces (¼" to ¾") and then thoroughly washing to remove dust and very small particles which could gather and block the drainage system. For washing, a large metal wheelbarrow was used and the plant was repotted "on the spot" by utilising an inverted pot in the centre of the barrow as a stand.
Mr. Lin has discontinued the use of 2" pots for seedlings and has adopted 3" pots which allow a longer time for the young plants to remain undisturbed. Similarly, when repotting more mature plants, a pot larger-than-normal, should be selected to allow plenty of room for expansion of the plant. The period of time between pottings may be further extended if the plant is placed close to the edge of the pot with the new growth directed towards the centre.
Repotting need only take place when the plant commences to creep over the edge of the pot.
During question time, Mr. Lin said he did not water orchids growing in charcoal any more frequently than plants growing in other composts, nor was extra feeding required. He advised that he watered daily in the summer and feeding was carried out weekly during the spring-summer period, tailing off to once monthly in the autumn-winter.

Reported by Mr. Norman Hall, A.N.O.S., Sydney Group.

AN UNEXPECTED TERRESTRIAL ORCHID RECORD FOR N.S.W.

B. Whitehead

During a trip to an area north of Robertson on the 9th, November 1969, a swamp with an interesting flora was observed. Closer investigation revealed an extremely heavy population of terrestrial orchids, and among them a tall, striking Thelymitra which dominated the scene with its widely opened, purplish blue flowers. Further study of the plant revealed that the details of the column, size, flower colour and general appearance were identical to the plant illustrated in 'Nicholls: Orchids of Australia', plate 18, as Thelymitra grandiflora. Well over 100 specimens were seen in the area, and all in full flower.
No less interesting were the species in the same general area - groups of Prasophyllum brevilabre, and smaller concentrations of Prasophyllum uroglossum, Thelymitra media, T. venosa var. magnifica and T. ixioides.
As with many terrestrial orchid species, I feel that if this very specialised habitat were duplicated elsewhere in N.S.W., and at a similar elevation, similar orchid species might be found.

B. Whitehead, 35 Burke Road, Dapto. N.S.W. 2530.

Orchids and Tree Fern. continued from Vol. 3. No. 6.

S. C. Clemesha

Raising from spores - The Cyathea species produce spores on the underside of the fronds where they soon ripen (by about December) and then remain there in tight bundles for at least five months, before being released. However, if a section of a leaf is removed at any time after the spores have ripened (i. e. when they have turned brown) the spores will be released within a few days or less, depending on the weather.

Dicksonia species produce their spores from about January to May and these are released as they ripen, but gradually, so one needs to shake several pieces over the sowing pot. Spores can be stored for at least a year, though viability diminishes rather quickly. I raise mine as follows: Sow rather thickly on a pot of staghorn or elkhorn fibre (Platycerium spp.). Cover the pot with a sheet of glass or on inverted glass jar and stand the pot in a saucer of water in full shade (I use a single sheet of hessian for shading). The developing plants are quickly destroyed by sun or overhead watering. The spores turn green in from about three to six weeks and should not be disturbed until the plants are making small fronds and roots. This will take the greater part of a year. They can be transplanted and as they grow larger, be given more light. You will have to wait a few years before you can place orchids on them, but have attractive plants in the meantime. The writer can supply spores of Dicksonia antarctica, Cyathea australis, C. cooperii and perhaps C. leichhardtiana in season, if sent a self addressed stamped envelope. If sent at a time when spores are not available, the envelopes will be held until such time as spores become available. If more than one species is required, send a separate envelope for each as they mix rather easily, despite all attempts to prevent same.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills, N.S.W. 2120.

A NEW NATIVE ORCHID FROM TOOWOOMBA.

M.J. Corrigan

Mr. & Mrs. D. Walters of the Darling Downs Group of A.N.O.S. have discovered what is undoubtedly a new native orchid hybrid.

On a recent trip to the "Gold Coast" of southern Queensland I took the opportunity of visiting Toowoomba to examine the hybrid which is obviously a natural hybrid between Dendrobium mortii and D. cucumerinum.

Imagine my surprise when Dud. and Gladys Walters proudly displayed some of the 20 plants they had discovered over the past two years. Having examined flowering specimens, including the very large original plant, found by Mrs. Walters, I can only agree with their determinations regarding its parentage. They have specimens of the hybrid growing amongst the roots of both D. mortii and D. cucumerinum and both species are very common in the type area.

Our visit to the type area which is a very dense scrub near Toowoomba proved to be a rare treat. In 21 years of native orchid collecting I have never seen so many specimen plants of both parents, in fact I was staggered at the profusion of D. mortii, which clothed nearly every tree.

Our day became memorable when Dud. and I found the twenty-first plant. A peculiarity of the hybrid is that most plants found, have been growing on their hosts at shoulder height.

Obviously the hybrid could not have been produced from a single seed pod as the plants have been found over an area of about 6 square miles, in very dense scrub, which would preclude wide seed dispersal, and as mentioned previously, the hybrid species has been found growing with both parents and these plants came from comparative extremes of the type area.

Other orchids seen in the scrub included, Dendrobium linguiforme, D. teretifolium, Bulbophyllum minutissimum (growing on a "Bottle Tree" - Brachychiton rupestre), Cymbidium canaliculatum, Sarcochilus falcatus, S. dilatatus and S. hillii.

A drawing and description of the species are in the course of preparation and I hope they will appear in the next issue of The Orchadian.

The two specimens presently in Sydney have both flowered twice in the last five weeks.

THE REDUCTION OF THELYMITRA VENOSA R.Br. var. MAGNIFICA Rupp TO A SYNONYM OF T. VENOSA R.Br. var VENOSA

S.C. Clemesha

Thelymitra venosa R. Br. var. magnifica Rupp, Austr. Orch. Rev. iv, 81 (1939) illustr; Rupp, Orch. N.S.W. 10 (1943); Nicholls, Austr. Orch. 1:t.49 col. (1955).

Rupp in publishing this variety claimed that it differed from the type in having flowers twice as large and that these remained open on dull days and at night. Nicholls plate of T. venosa var. magnifica shows the flowers having a slightly different shaped labellum to the petals, which

continued page 83.

CALOCHILUS IN THE BLUE MOUNTAINS, N.S.W.

C.K. Ingram

Miss E. Bowden ("Australian Naturalist", Oct. 1962, pp. 11 - 20) records four species of *Calochilus* from the Blue Mountains - three of them being widely distributed and flowering during the months of October and November, viz. *C. campestris*, *C. robertsonii* and *C. paludosus*. The odd one is *C. gracillimus*, of more limited distribution and later flowering, viz. January to March.

In "The Orchadian" (Vol. 1, No. 11, p. 143), B.J. Dudman ("Native Orchids from North Western Tasmania"), writes of the Mt. Montgomery area: "*Calochilus campestris*, *C. robertsonii* and *C. paludosus* are scattered in the sandy soil at the base of the mountain".

On the 13th October 1969, a similar phenomenon was observed by me on the roadside east of Bilpin in the Blue Mountains, All these three species were growing in close proximity and in full flower, yet there was not the slightest doubt as to the identity of the three. To one well-versed in the hybridising ways of *Diuris* in the central west of New South Wales, and of the *Calochilus* to maintain a separate identity, while flourishing in quantity, struck me as being particularly interesting.

ALTERNATIVE KEY TO THE GENUS CALOCHILUS IN NEW SOUTH WALES.

Considerable dissatisfaction is sometimes expressed with the keys to *Calochilus* by Rupp ("Orchids of New South Wales", p. 49) repeated by Beadle ("Handbook of the Vascular Plants of the Sydney District and Blue Mountains," pp. 471 - 2). Nicholls ("Orchids of Australia" (near Plate 52)) and Firth ("Native Orchids of Tasmania", p. 41) seem to provide more workable approaches. The chief problem lies in trying to determine the presence or absence of "coloured connecting ridges" between the glands of the column.

Hereunder is offered an alternative key, dispensing with this contentious feature:

1. Labellum with prominent metallic-blue plates covering the basal third; the remainder hairy.
    2. Plant with underground rhizomes; leafless, but with 2 - 4 stem - bracts .... 1. *C. herbaceus* (*C. saprophyticus*)
    2.* Plant non-rhizomic, with well-developed lanceolate leaf and two stem bracts only .... 2. *C. campestris*

1.* Labellum covered with hairs and papillae in the basal third. Metallic blue plates absent.
    3. Plant with slender, almost linear leaf; flower exceeding 4 cm., and up to 5.5 cm. (measured from tip of dorsal sepal to tip of labellum); golden yellow and purple. 3. *C. grandiflorus*
    3.* Plant with stout, lanceolate leaf; flower less than 4 cm. (measured from tip of dorsal sepal to tip of labellum; greensih-brown, rufescent or green.
        4. Column with a dark gland on each side at the base.
            5. Labellum tip short (up to ¼"), flexuose, and usually bent downwards at an angle to the labellum. Plant flowering September - November .... 4. *C. robertsonii*
            5.* Labellum tip exceeding ¼", straight, almost filiform. Plant flowering December - March .... 5. *C. gracillimus*
        4.* Column without a dark gland on each side at the base (but possessing two pale intra-marginal plates on the base of the labellum). Labellum tip long, (½ length of lamina), ligulate, and often straight.................... 6. *C. paludosus*

My thanks to Mr. B. Whitehead, of Dapto, who has checked this key and offered much appreciated suggestions.

C.K. Ingram, 2/306 Malton Road, Epping North. N.S.W. 2121.

A REVIEW OF "ORCHIDS OF AUSTRALIA".

A. W. Dockrill

The long awaited complete work of the late W. H. Nicholls has been reproduced in one volume by the publishing firm Thomas Nelson, of Melbourne, under the title "Orchids of Australia". This is a large volume (13" x 10") comprising 129 pages of descriptions and 476 pages of illustrations in full colour. It is unquestionably the most significant, or at least as significant, as any contribution to Australian orchidology this century and will undoubtedly remain an important reference work on Australia orchids for all time. One wonders how a man in a short lifetime could produce so much in such detail, and it is a matter of the deepest regret that the author did not live to see his complet work published (W. H. Nicholls died in 1951). The descriptions are excellent and the illustrations magnificent, giving, for the most part, a flowering plant in natural size and in natural colour, with enlargements in detail of some of the important parts of the flower. One must also compliment D. L. Jones and T. B. Muir for their excellent editing. Their task of arranging in an orderly fashion, all of Nicholls works, checking the nomencalture and bringing it up-to-date must have, indeed, been very onerous. Compliments are also due to the publishers who have been able to produce such a volume to retail at $30.

Being such an excellent work, one is loth to be critical, but as a reviewer, one is duty bound to point out a few of the shortcomings, minor though they are. Firstly, the work is titled "Orchids of Australia", which is apt to give the impression that the work covers all of the orchids of Australia, but this is not the case; as one instance, a single species of Habenana is described and illustrated, whereas about 15 occur in Australia. It would have greatly enhanced the value of the volume if at least mention had been made of those Australian species not described and illustrated in the work. In the Editors' introduction, one is assured that the arrangement of the genera is basically (with a few minor modifications) that of Pfitzer in Naturlichen Pflanzenfamilien ii, 6 (1889). However, on going through the text, one is not always sure of the affinities of each genus, as no indication is given of where a group begins and ends, and unless the reader has a copy of the relavent volume of Naturlichen Pflanzenfamilien, which the average reader certainly would not possess, he is often left guessing. There are two small criticisms that could be levelled at the publishers; a few of the reproductions of the illustrations are blurred, and the binding appears rather fragile for such a volume which will be used repeatedly for many years.

One is very hesitant to say anything about the author's work, as the general standard is very high. However, the colour, in some instances, seems to be slightly garish. Longitudinal sections of the labellum and column in some of the genera, particularly those of the subtribe Sarcanthinae, would have greatly assisted the average reader in gaining an understanding of the distinguishing features of a particular genus. Keys to the species of the various genera would have greatly enhanced the usefulness of the book, but their absence is understandable when one realises that the author did not live to complete his task.

A. W. Dockrill, P. O. Box 630, Lae.
T. P. N. G.

A NOTE ON EULOPHIA FITZALANI F. Muell.

S. C. Clemesha

The genus Eulophia contains both sapprophytic chlorophyll-less species and plants which produce green leaves and therefore have a more normal means of nutrition. As the leaves of E. fitzalani have not been seen, it has not been known whether this species is a saprophyte or not.

Mr. N. Howcroft discovered large colonies of this species and E. venosa var. papuana in a district near Bulolo, New Guinea. The determination of both was confirmed by Dockrill of Lae Herbarium. Mr. Howcroft lifted several plants of E. fitzalani in flower and moved them to his garden and marked the remaining plants in situ. After the flower spikes had died the plants produced a leaf stalk. This produced from two to three leaves. The habit of leaves and separate stems also occurs in E. venosa and E. agrostophylla. The production of green leaves proves E. fitzalani is not a saprophyte and so the only saprophytic species of Eulophia in Australia is E. carri.

S. C. Clemesha, 18 Wesson Road, West Pennant Hills. N. S. W. 2120.

RESIGNATIONS FROM A. N. O. S. COUNCIL.

It is with regret that your Council has received and accepted the resignations of two of our Councillors - Bill Murdoch, the founder and first President of our Society and Allan Reeves our Assistant Hon. Secretary. Allan will undertake additional technical courses in line with his executive responsibilities. All members will wish them well after their stalwart services to our Society.

THE PINK THELYMITRAS IN NEW SOUTH WALES.

C.K. Ingram

FitzGerald ("Australian Orchids", Vol. 2., pt. 1, writes:
"*T. rubra* and *T. carnea* are so closely related that it appears to me that either *T. carnea* is a degradation of *T. rubra* to an abortive form, or *T. rubra* is an advance from the self-fertilising *T. carnea* to what appears to me to be the higher form, where the flower opens and foreign assistance is required for fertilisation".

Thelymitra rubra is recorded from South Australia, Victoria, N.S.W. and Tasmania, while *T. carnea* (synonym *T. elizabethae*) is recorded for N.S.W., Victoria, South Australia and New Zealand. Prior to Nicholls' article in the September, 1940 issue of "The Victorian Naturalist" (p. 103) there was considerable confusion in southern states about the two, despite FitzGerald's statement (l.c. supra) that although "*Thelymitra rubra* has been confounded with *T. carnea*"..... it is easily distinguished by the large carunculated appendages of the column, by the brighter colour and larger size of the flowers, and by their expanding, whereas those of *T. carnea* very seldom open."

I venture to suggest that the two are not easily separated - at least in New South Wales, and I think quite a number of people would agree, e.g. Barnett in "The Orchadian" (Vol. 3., No. 4. p. 45).

FitzGerald also mentions the height of the anther in *T. rubra* but, in my opinion, features which depend on comparisons of two species are, in general, of little value in the field where only one species is likely to be at hand.

Willis[*] offers a more helpful key by pointing out that the flowers of *T. carnea* are generally of less than 1.5cm. diameter, while those of *T. rubra* normally fall between 1.5 and 2 cm.

Thus of FitzGerald's features only the large, carunculated appendages (lateral lobes) of the column of *T. rubra* may be considered as a possible quick and reliable menas of identification. He has illustrated these in his usual excellent fashion, *in side view,* in Vol. 2., Pt. 1. The only drawbacks are (a) not many people possess copies of FitzGerald; (b) he does not give a similar side view of the lateral column lobes of *T. carnea*, and therefore one is forced to rely on the text and sketches of Nicholls (Pl. 40 & 41). The latter describes their lateral lobes thus:
T. carnea: "Lateral lobes more or less denticulate, smooth on the outside." (i.e. non-glandular).
T. rubra: "Lateral lobes....... covered with rugulose glands, the margins markedly denticulate". (i.e. pimply on the outside. Or to use FitzGerald's words: "Covered on both sides densely with rugose glands").

Quite frankly, in a number of cases I have been unable to decide into which of these groupings any particular collection falls. I have thus been forced to search for a further easy, quick and reliable guide.....

May I suggest that the vestigial knob (frontal appendage) of the column of *T. rubra* may be worthy of consideration in this regard? Most readers will readily recall John Blackmore's excellent article "The Orchadian", Vol. 2., No. 3., pp. 44 - 46) on *Thelymitra circumsepta* and its fourth lobe (or vestigial knob) on the column. Therein, incidentally, he mentions (and illustrates) vestigial knobs on the columns of three other species, viz, *T. rubra*, *T. flexuosa* and *T. antennifera* (p. 45, fig. G.)

I have been unable to find any such similar frontal appendage in specimens of what I believe to be *T. carnea*, and reference to plates by Nicholls, FitzGerald and Erickson[*2] seem to support my findings.

Henceforth, I suggest that field work be undertaken to determine whether this feature can be used in the ready separation of the two species. It will need examination of many individuals in each population next spring to determine the consistency of the occurrence in *T. rubra* and of its non-occurrence in *T. carnea*. If no clear picture emerges, then serious consideration may have to be given to regarding the two species "as forms of a single species" (Nicholls, opposite Pl. 41, quoting FitzGerald.)

To assist investigations, records of the two species in New South Wales, as known to me, are listed hereunder:

Division	*T. carnea*	*T. rubra*
North coast	Bulahdelah (Rupp 9 - 1923). Paterson (Rupp 9 - 1929). Kurri Kurri (Nicholls 9-1926) Taree (Waterman 9 - 1933). Weston (Rupp 9 - 1930).	Toronto (Burns 10-1931).

continued page 83.

The Pink Thelymitras In New South Wales. cont.

Division	T. carnea	T. rubra
Central coast	Port Jackson (Brown). Paddington (Cheel 8 - 1898). Willoughby (Boorman 9 - 1914). Newport (FitzGerald). Parramatta (Woolls)* Botany Bay (Boorman 10-1899). Lane Cove (Rupp 9 - 1916). Hornsby (Blume 9 - 1897). Hunter's Hill (FitzGerald). Liverpool (FitzGerald).	Between Kiama & Newcastle (Willis p. 353). Jannali (Moodie & Rupp 8 - 1942 - var. magnanthera). Parramatta (Woolls)* (*Were both species found by Woolls at Parramatta, or has either FitzGerald (Synopsis) or Nicholls made an error in listing or was the original determination an error?)
South coast	Jamberoo Mt. (Cady 10 - 1959). Timbillica (Wakefield 10 - 1940)	
Central tablelands	Widely distributed on Blue Mountains (Bowden). Glenbrook (Bowden). Mt. Wilson (FitzGerald) Rockley Mt. (McFarland 10 - 1962; Blackmore 11-1960; Brinsley 10-1961). Yetholme Trig. (Brinsley & Ingram 11-1962). Bathurst (Brinsley 10-1960, 10-1961). Abercrombie Caves (Mair 10 - 1951). Charlton (Brinsley 11-1962). Caloola (Whitehead 10 - 1963).	Wentworth Falls (Dockrill & Bowden 10-1953) Katoomba (Dockrill & Bowden 10-1953) Narrow Neck (Blackmore 10-1953). Berambing (Hungerford 10-1965; 10-1966 & 11-1969).

---

*1 Handbook to the Plants in Victoria, pp. 353 - 354.
*2 Orchids of the West, Ist. Edition, p. 19. Fig. 15.

C.K. Ingram, 2/306 Malton Road, Epping North. N.S.W. 2121.

The Reduction of Thelymitra venosa R. Br. var. magnifica Rupp. To a Synonym of T. venosa R. Br. var. venosa. cont'd.

is not the case with the accompanying illustrations of the form he considered to be T. venosa var. venosa.

The variety magnifica was recorded from several localities in the Blue Mountains and at the top of Bulli Pass N.S.W. More recently it has been found at Fitzroy Falls N.S.W. The author noticed that all specimens of T. venosa he collected from the Blue Mountains and Fitzroy Falls remained open at night, regardless of size, and all had a labellum differing from the petals, as in Nicholls plate. They clearly represented all the same variety, though variations in size were noticed, as is common in most species. As the author was aware that the type of T. venosa was collected near Botany Bay, he thought it would be surprising if it did not represent that form also. A photograph of it was obtained and the specimens portrayed are a good match for them so consequently the variety can be regarded as a synonym.

continued page 84.

The Reduction of Thelymitra venosa R. Br. var. magnifica Rupp. To a Synonym of T. venosa R. Br. var. venosa. cont'd.

Recently the author has seen numerous specimens of T. venosa in the Snowy Mountains area of N.S.W. To his surprise these did not represent the form depicted by Nicholls as the type, but were the same as those from the Blue Mountains etc. They remained open on dull days (which were warm) but were pressed before night. During one unusually hot, but dull October day I observed specimens of T. pauciflora widely expanded (an uncommon enough sight even in fine weather.) Consequently warmth seems a significant factor in the opening and closing of Thelymitra flowers. T. venosa flowers later than other species of the genus that occur in the Blue Mountains with few exceptions. The weather then is considerably warmer so it is not altogether surprising that Thelymitra flowers remain open in dull weather. If there are other forms of T. venosa occurring in the southern states that are sufficiently different, then they require naming, however this must be approached with the utmost caution or a bewildering array of meaningless varieties will result as presently exists in Caladenia carnea R. Br.
The type photograph is now at the National Herbarium of N.S.W. at Sydney. The name of the type form of T. venosa must remain as T. venosa var. venosa because at least one other variety of the species exists (T. venosa var. cedric-smithii Hatch).
The author would like to express his thanks to the staff of the British Museum (Natural History) for providing the photograph of the type specimen.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills, N.S.W. 2120.

BULBOPHYLLUM AURANTIACUM F. Muell.

S.C. Clemesha

General: Name meaning orange, referring to the flower colour. A member of the section Polyblepharon, of the genus, and perhaps, more closely related to B. crassulifolium and B. wadsworthii. Distinguishable from B. crassulifolium in having pendulous stems and from the above species in its much larger, flatter leaves, which often reach 2" in length. The leaves however, are very variable and in some forms approach those of B. crassulifolium. The small, waxy, bright orange to tangerine-red flowers, have small petals and so appear to be just 3 sepals and a labellum. The flowers are very small when compared with the leaves and are almost stemless. When a large number are open the stem of the plant gives the appearance of having changed colour. It is definitely a botanical novelty and though showy enough in one sense, it cannot be compared with the larger Dendrobium species. It flowers irregularly in all seasons except winter.
Natural habitat. North Queensland, from mangrove swamps to 4,000 feet. It extends to southern Queensland and New South Wales (as far south as the Hunter River). The species grows on trees and rocks in rather light situations. In the only area where the author has seen it (near Gloucester N.S.W.) it was very common on trees and rocks in dry stunted rain forest on a cliff face.
Cultivation. (Sydney) Perhaps the most easily cultivated speciea of the genus, tolerating drier conditions better, burning less from the sun and lacking frost sensitivity (including coastal north Queensland plants). Easily grown on fibre blocks and tea tree bark. I prefer the former.
Advantages. Ease of culture, flowers can appear at most times of the year and are bright and colourful.
Disadvantages. Flowers are very small in proportion to the leaves and are too small for their individual character to be easily seen.
Propagation. Any pendulous stem of the plant can be removed and will build up into a new plant in a relatively short time.

S.C. Clemesha, 18 Wesson Road, West Pennant Hills. N.S.W. 2120.

VALE DAVE HARDIE.

The Editor

It is with deep regret that I must report the passing of Dave Hardie on Thursday the 19th. of February. Dave, as he was known to his many orchid friends was a stalwart of many orchid societies and will be long remembered for his deep love of native orchids and his unfailing cheerfulness through long periods of ill-health. He was a foundation member of the Society and the inaugural President of the Sydney Group for many years.

GROUP NEWS.

Members are requested to forward prospective Group News material to our President, Bob Napier at 12 Laguna Street, Caringbah N.S.W., 2229. This has become necessary following the resignation of Bill Murdoch.

A.N.O.S. NEWS - SOUTH AUSTRALIA.

Extracts from a letter from Ray Nash to Bill Murdoch regarding South Australian news. Members may care to put pen to paper and let the Editor have their comments.

"Now to things other than local. Here is another bit to my argument over the Thelymitra circumsepta and T. retecta business. On a visit to Tasmania in 1968, I was shown some of John Firth's colour slides of the native orchids in Tasmania by his wife Jean. Amongst this collection was on T. retecta, which showed one flower very clearly to have a well developed branched third lobe to the column, just as in the Blue Mtns. T. circumsepta. I think much more work needs to be carried out on this group and it needs to be done in a systematic manner, preferably through A.N.O.S.

I have been out and searched up the white flowered Dipodium punctatum that grows in the Upper Sturt area of the Mt. Lofty Ranges. These flowers appear white or creamy white, but upon examination the labellum carries small pink stripes down its length and other than colour are identical with the pink form here.

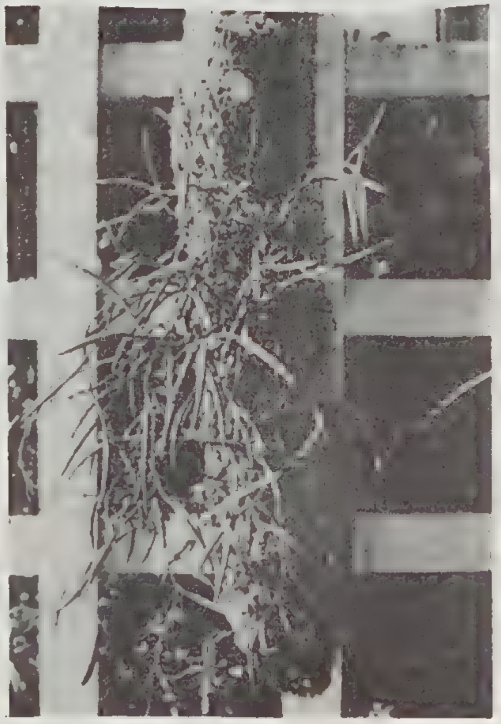
Do you think it would be possible to either run an article on the fungicides that are safe to use upon orchid plants and the methods of application, or could not members be asked to report on their experiences of same. People like myself who have had zero experience with fungicide would find this extremely helpful. I am sure that many members of A.N.O.S. would have something to say upon this score.

I have been wondering if Australia could not be divided up into various sections and an effort be made to either survey each section in turn, or several at once. The idea being to encourage people to tell of what they have seen in the bush (no need to insist upon exact locations, just the general district - this is to flout the spoilers), what they are growing or what others are doing in their areas. Perhaps we could run a yearly competition to the best potted, hanging, or what else plant in Australia. All the entries to be submitted per. a photograph which has not been taken by the plants owner but by a friend. The owner of the plant and the photographer to get a prize. I am thinking of those people who live away from the masses and who don't have much of a chance at exhibiting their plants in a show. This would also be a chance for the photographers too. I hope you get the idea.

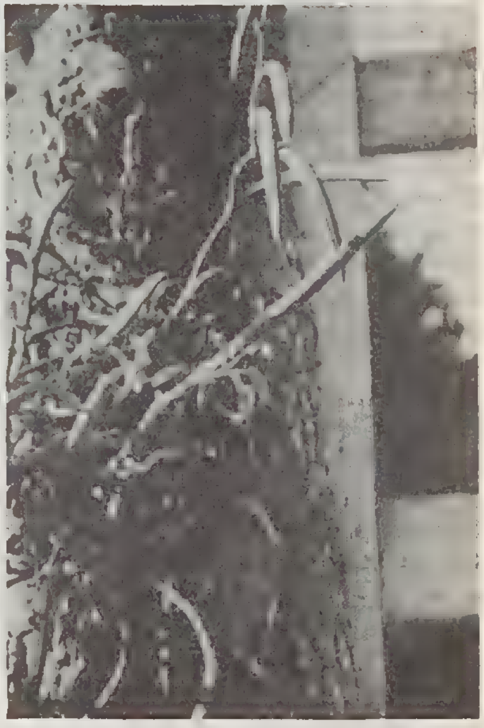
Reported by Ray Nash, 77 Coromondel Parade, Blackwood.
S.A. 5051.

Dendrobium mortii F. Muell. X D. cucumerinum McLeay. cont.

D. Walters with original plant.



B. Close up of plant.



C. Close up of plant showing flower buds.

DENDROBIUM KINGIANUM Bidw.

S.C. Clemesha

This article has been designed to help readers have a better understanding of some of the papers which appear in The Orchadian. Parts of this article have been quoted from "Orchids of N.S.W.", by the Rev. H.M.R. Rupp, but all botanical terms are explained in brackets and an explanation of the key by the author is included. The use of the name Dendrobium kestevenii in Rupp's key is replaced with Dendrobium X delicatum as D. kestevenii is now regarded as a synonym of D. X delicatum. Part of the key to the genus Dendrobium (from Rupp's "Orchids of N.S.W." 1943 p. 112).

1. Stems erect, more or less pseudobulbous (resembling bulbs), not branched, often corrugated longitudinally (ridges up and down stems) with leaves near the apex (top) only.

2. Leaves 2-7.

3. Stems more or less swollen from close to the base.

4. Stems 10-65 cm. (4" - 26") high, often very robust. Leaves 8-24 cm. (3"-9") long, broad, very thick and coriaceous (firm and tough, like leather). Racemes (flower spikes) up to 40 cm. (16") long. Individual flowers often large, white cream, or yellow. .... D. speciosum 1.

4*. Stems 6-30 cm. (4"-12") high, robust or comparatively slender. Leaves 5-13 cm. (4"-6") long, coriaceous (firm and tough, like leather). Racemes much shorter than in D. speciosum, not exceeding 25cm. (10"). Individual flowers not large.

5. Robust plant with racemes up to 25 cm (10") long. Flowers white, cream, or rarely pink. .... D. X delicatum 2.

5*. Stems slender above the swollen part. Racemes usually under 20 cm. (8") long. Flowers in several shades of pink, or rarely white .... D. kingianum 3.

On reading the key numbers on the left hand side - 1,2&3 refer to erect stems, corrugations, leaves at apex, number of leaves and stems swollen close to base, common to Dendrobium speciosum, D. X delicatum and D. kingianum.
4. describes height of stems; leaves, length of racemes and colour of flowers of D. speciosum. As 4 does not agree with D. kingianum we now move to 4*, which describes height of stems, length and thickness of leaves, racemes and size of flower. 5 describes robust plant and length of racemes, 25 cm. long, which does not agree with D. kingianum, but do with D. X delicatum. 5* describes stem slender above swollen part. Length of racemes and colour of flowers agree with D. kingianum. If plant is in flower all of 5* would agree. If no flowers are evident on the plant the slender stem above swollen part identifies it.
The numbers on the right side of key are the order in which the species are fully described.
The description of Dendrobium kingianum in Orchids of N.S.W. reads as follows -
3. (Third species of Dendrobium described) Dendrobium kingianum Bidw. (short for Bidwill, the original author of the species) in Lindl., Bot. Reg. (J. Lindleys Botancial Register), 1844 is the year of publication. Misc. 11; Ibid. (same name as previous publication 31, (1845), t. 61; Bot. Mag., (1850), t.4527; (Curtis Botanical Magazine in 1850); Benth. Fl. Austr., V1(1873), 280, (Benthams Flora Australiensis, Volume 6, Published in 1973, page 280). These references are used by botanists to check original and later descriptions.
The following description is from Rupp's Orchids of N.S.W., page 116, with explanations of botanical terms by the author.
Plant very variable in dimensions; sometimes with a short stout pseudobulbous stem, sometimes with a slender stem pseudobulbous only at the base, and reaching a height of 25 or even 30 cm., in either case producing aerial growths very freely at the top. Leaves 3 - 6, lanceolate (lance shaped, widest at mid line and tapered to acute apex, at least three times longer than broad), not very thick, 3 - 10 cm. long. Flowers 2 - 9, varying in colour from pure white (rare) through various shades of pink to deep mauve. Dorsal (back or outer surface of part) sepal (the outer section of the flower which surrounds the centre of flower) erect or slightly incurved about 15 mm. long and 4 - 5 mm. broad lanceolate. Lateral (side) sepals about as long but much broader; petals narrower and shorter. Labellum (the inner lip, like petals) with rather acute lateral (side) lobes (the free part when divided or cleft about its middle); mid-lobe broad, more or less fan-shaped, but mucronate (ending in a short and sharp point), recurved, usually splashed with mauve in the paler pink forms. Column (the solid body in the centre of an orchid) rather stout, half as long as the labellum (the side facing away from object, usually greatly modified and differing widely from the two paired petals).

continued page 87

Dendrobium kingianum Bidw. cont.

Fl. Aug. - Nov. (flowers August to November). "Lily - of - the Valley Orchid", "Pink Rock Lily", refers to common names or popular names, which vary from district to district and person to person.)
Coast to Tableland in the northern half of New South Wales (refers to where plant is found in N.S.W.), on cliffs. Clarence River, Betche; Mt. Warning, Forsyth 11.1898; Bolivia, Betche 11. 1886; Gloucester, Maiden 9.1897; Ellenborough Falls, Maiden and Boorman 10.1903; Coramba, Fraser 1915; Kendall, Bailey 9.1929. (Refers to locality of collection, name of collector, month and year of collections held in National Herbarium located in Royal Botanic Garden, Sydney).
In Herb. Rupp: Bullahdelah, Rupp 9.1923. (In Herbarium of H.M.R. Rupp, collected at Bullahdelah by Rupp, September 1923). Recorded also from Queensland.

H. Douglas, 123 Gladstone Avenue, Mt. St. Thomas. N.S.W. 2500.

THE RE-DISCOVERY OF PTEROSTYLIS CONCINNA IN SOUTH AUSTRALIA.

M. Beek

Pterostylis concinna has been thought extinct for more than fifty years in our state. In his book, "South Australian Orchids" which was printed in 1911, Rogers wrote the following notes: "I have never found P. concinna in South Australia. In appearance it is very much like P. nana, but it has a neat V - shaped piece nipped out of the tip of its tongue. A single specimen was found at Swanport on the River Murray many years ago. And the boy who discovers another will find himself botanically famous. It is not very rare in the neighbouring states and should therefore be looked for near the Victorian border."
Ever since that time botanists and orchid hunters have been on the look out for this elusive orchid without any success; but it took a newcomer in this field to make this most historical find.
In October 1968, a friend of mine, Mr. Kevin Johnson, brought me a small orchid for identification. He had found it in a piece of scrub at Nangwarry. When I looked at the little flower, I could not believe it at first, for here in my hand I held the first re-discovered specimen of P. concinna. There was no mistake! The neat appearance of the flower and the dark brown notched labellum just peeping over the sinus. It really was P. concinna!
"There was only one flower," he told me," and I am going to press it". But of course, it was October and most of the plants would have died down by now. He was lucky to have found this one and only flower at all!
This year, in July 1969, we made an excursion to Nangwarry to see this orchid in its full glory. The scrub in which it grows is only about six acres in area, surrounded by paddocks and pine plantations. Years ago, the owners kept pigs in that area. Later on it was a turkey farm. It is amazing that the orchids have survived the pigs and turkeys, for they must have eaten many tubers, and an interesting fact was that the 'trim greenhoods' grew thickest where the pigs had been!
The area is cool and shady with waist high bracken under tall growing swamp gums (Eucalyptus ovata.) and many orchids flourish in these ideal conditions. Corybas dilatatus and C. diemenicus had firm, large, flowers nearly an inch across! Acianthus reniformis was just coming into bloom and carpets of Acianthus exsertus carried many seed pods, telling us of what had been.
Clumps of Pterostylis nana nestled elsewhere and many rosettes of P. pedunculata and numerous leaves of Caledenia species and Glossodia major were scattered all through the undergrowth.
A later survey in October revealed a small colony of Pterostylis vereenae, the first sighting of this orchid in the south east of our state. Then of course there were carpets of Pterostylis concinna, which were well and truly established in the area. An amazing thing about these orchids was that many of them were double-headers and some of them even had three buds on the stem! However, when we revisited that area a few weeks later we discovered that most of the double-headers were virus infected and did not mature, though a few did.
Now I wonder, why were only the double- headers infected and not the single flowering specimens? And why only the Pterostylis concinna and not the other orchids?
On studying the area closely I suddenly realised that many more of these lovely "greenhoods" could have grown here before the bulldozer crushed them down and some "progress loving people" planted acres and acres of pines!
Rogers was right! Nangwarry is only about ten miles from the Victorian border and there could have been acres of these orchids between this spot and the border. How long, I wonder, will this last sanctuary of Pterostylis concinna in South Australia remain?

Mrs. Marian Beek, 12 Merino Street, Naracoorte. S.A. 5271.

NATIVE ORCHID OBSERVATIONS.

R. Ford.

Having recently moved my native orchid collection from Toowoomba to Caloundra I have been wondering how they would grow in their new environment. I have no doubts about the north Queensland tropical species but the temperate climate species may require altered conditions.

One point of interest is that the sudden change of climate has caused quite an upset in the flowering, even within the species. For instance, Parasarcochilus weinthalii produces a wonderful show in Toowoomba in September. I brought my plants down to the coast during May and June and about half the P. weinthalii have finished flowering in July, whilst the other half are just beginning to flower.

In the case of Dendrobium gracillimum six plants produced spikes this year, of these, two have completed flowering, one is in flower now and the remaining three flowered in mid. August. All earlier than Toowoomba, but most irregular.

The same thing is happening with Dendrobium beckleri, D. tenuissimum, D. gracilicaule, D. aemulum, Sarcochilus falcatus, S. hartmannii, Bulbophyllum elisae and B. bracteatum, with them "playing up" - some finished flowering, and some still to flower..

On a recent one day trip into the bush, in an area of roughly ten acres I counted 28 native orchid species. Of these only one was a true terrestrial (Calanthe triplicata). We found two Liparis sp., five Sarcochilus sp., two Parasarcochilus sp., eleven Dendrobium sp., seven Bulbophyllum sp., and Calanthe triplicata. In addition to the above, we found two plants of what is almost certainly a natural hybrid cross Dendrobium beckleri X D. pugioniforme, another Dendrobium pugioniforme X D. tenuissimum and what appears may be a natural hybrid Dendrobium beckleri X D. tenuissimum.

From this you will see that we still have in close proximity, interesting things to see and find. But for how long I wonder, about half this area had already been cleared to open up the country for grazing. One large tree (fallen) had several plants of Dendrobium gracilicaule, D. teretifolium and almost fifty plants of Dendrobium speciosum just waiting to be burned.

In this case how does one go about preservation? The landowner has to live and open up the country for grazing. As I see it, the only way is by more people growing native orchids in cultivation and fortunately this is happening, not only with orchids but other native flora as well.

I remember reading an article in which it was stated that more orchids should be protected, but I have encountered many folk who believe protection can tend to hasten destruction. Human nature being what it is, one wants more of the thing that is protected. Just like the little boy looking over the fence at his neighbours apples, he knows he should not touch them, but when opportunity exists, he gets more than he wants.

Within fifty yards of the back fence of the property I have purchased I have counted eight terrestrial orchid species. This is crown land and it is planned to clear it within the next few years for sporting fields.

Again the march of civilisation is going to eliminate many interesting species of orchids and wildflowers generally.

I hope that I have not bored you too much and trust that in the year ahead our membership grows and thereby adds to those who believe that by cultivating our native orchids we will aid in their preservation.

R. Ford, 4 Carlton Avenue, Caloundra, QLD, 4551.

CALADENIA ANGUSTATA IN THE BLUE MOUNTAINS, N.S.W.

C.K. Ingram

Cady, in a personal communication (29 - 6 - 1961) referring to Caladenia cucullata and its congeners (C. angustata, C. dimorpha and C. praecox) says:

"This group of Caladenias is, in my opinion, still actively envolving. This is why we find it hard to say this is such or that is so".

Surely one of the most interesting of these is the form of Caladenia angustata found near Clarence in the Blue Mountains, N.S.W.

On the 29th. November, 1969, my son, Ross, and I were visiting this area to note the effect of an abundance of rainfall (63" for 11 months) on several late flowering terrestrials, viz. Thelymitra circumsepta, T. venosa, Adenochilus nortonii, Rimacola elliptica, Microtis oblonga, Diuris sulphurea and Orthoceras strictum.

Under some trees of Eucalyptus mannifera sp., gullickii in thickish scrub my son noticed a number of white terrestrials, with 1 - 3 flowers, each over 3 cm. in diameter, and having a labellum with 4 rows of yellowish calli and a recurved mauve tip. On cursory field examination I put them down as Caladenia dimorpha.

continued Vol. 3. No. 8.

THE ORCHADIAN

APRIL 1970 PRICE: 30 cents PAGE 89.
VOL. 3. NO. 8.

Published by The Australasian Native Orchid Society

Patron:	Sir John Hall Best	Vice Presidents:	C.K. Ingram L. Bradford
President:	R. G. Napier	Editor:	M.J. Corrigan
Hon. Secretary:	H. Jay	Asst. Editor:	
Treasurer:	E. Marygold	Immediate Past President:	Eric Gordon
Records Sec.:	D. Dawson		

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
26 OCT 1972

ANNUAL GENERAL MEETING - 12th. September, 1970.

The Annual General Meeting of The Australasian Native Orchid Society will be held in Sydney on the above date. The site and time for this meeting will be published in your next Orchadian, to be published later this month - June.

ANNUAL ELECTIONS.

Financial members are advised that the closing date for nominations will be the 10th. August, 1970. Date of election will be the 10th. September, 1970. Nomination forms will be forwarded to financial members as prescribed by the Constitution and its Amendments, dated April, 1970.

MEMBERSHIP RENEWAL

Members are reminded that annual subscriptions to The Australasian Native Orchid Society fall due on the 1st. July each year. Post your Postal Order or Cheque to the Society, at P. O. Box C106 Clarence Street, N. S. W. 2000. Ordinary membership is $2. 50 per. annum. Post your subscription early this year and make the task of our Hon. Treasurer so much easier. Remember he is a busy man too and devotes what spare time he has to the benefit of our Society. If you have any queries regarding your financial membership don't hesitate to contact the Society for details.

THE ORCHADIAN - BACK ISSUES.

Is your file of back issues of The Orchadian up to date ? Remember this magazine is the most up to date and definitive work on native orchids in Australasia. Back copies of all issues are available as follows:
Vol. 1. Nos. 1 - 12 at 40 cents per. copy. Index to Vol. 1., is available at 40 cents each.
Vol. 2. Nos. 1 - 12 at 40 cents per. copy. Consolidated Index to Vols. 1 and 2 available at 40 cents.
Bound copies of Volumes 1 and 2 are available at $8.00 each. Volume 1 includes index to Volume 1 and Volume 2 includes the consolidated index to Volumes 1 and 2.
The Society has been experiencing considerable difficulty in arranging the binding of members copies and it is with regret that we must cease this service. Binding costs have risen sharply, as have all prices lately, and it is felt that individual members will be able to arrange their binding requirements at an acceptable price. The Editor can recommend both of the following Sydney book binders: Les Baddock Pty. Ltd., and D.S. Murray Pty. Ltd. The latter book binders have bound the Editor's books to complete satisfaction for many years.

AUSTRALASIAN SARCANTHINAE - By A.W. Dockrill.

Australasian Sarcanthinae by A. W. Dockrill, with forward by Dr. R.E. Holttum, pp. 88, with 43 plates, 9 7/8"x 7 5/8", red cloth. Price to members $4.50 including postage and mailer. Retail price $6.00. Whilst not a complete work on the orchids of Australia such as Dockrills "Australian Indigenous Orchids", this volume is a complete record of the subtribe and a real bargain at $4.50.

CALADENIA ANGUSTATA IN THE BLUE MOUNTAINS, N.S.W.

continued from Vol. 3. No. 7

C.K. Ingram

Rupp (p. 66) and Bowden (Aust. Nat. 1962, p. 17) seemed to confirm this preliminary determination, as both recorded Blakely's collection of the species from the selfsame locality in the same month, 1939, exactly 30 years earlier, and there are records also for Bell, Newnes Junction, Mt. Wilson and Tomah, whereas C. angustata was recorded only from the main range by Blackmore and Bowden, 1953-4.

However, a more thorough investigation of my specimens, raised considerable doubts in my mind. Firstly, there was a strong, unpleasant odour, well meriting the sobriquet "Polecats", and my own experience and a check of all available literature on the subject failed to uncover any reference to an odour of any type belonging to C. dimorpha. Secondly, the labellum was definitely trilobed. Thes features seemed to place the specimens fairly and squarely in C. angustata, but Rupp's key (p. 58) made me hesitate. I quote:

"18. Flowers often large. Calli purple or with yellow heads. Tip of labellum purple .... C. dimorpha: 16.
18^{x}. Flowers not large.
  19 Flowers, strongly musk-scented. Calli with red, yellow or white heads. Margins of labellum crenate or denticulate .... C. angustata : 17."

Quite obviously my specimen fitted as far as the latter went, but it also fitted 18^{x} except that the flowers were large. Rupp (p. 66) limits C. angustata to "scarcely 2 cm. in diameter" !! whereas these, as previously noted were over 3 cm. I then checked back to Nicholls' "Review of Certain Species of Caladenia" (Vict. Nat. 2 (1931) p. 158) and noted that he gave the dimensions as 2 - 3.5cm. diameter. (Apparently Rupp's experience with N.S.W. specimens induced him to curtail the diameter).

Positive evidence seemed to be accumulating that my specimens were really a large form of Caladenia angustata and that a re-examination of Blakely's recording should therefore be made. This conclusion has now been supported by the publication of Nicholls' monumental "Orchids of Australia" (to hand 5th. December, 1969). Plate 227 (figs. a - e) is of a specimen from Bell (the nearest village, and several miles from Clarence) and is a good match for my specimens except for the labellum (fig. c). The labellum on my specimen closely approximates that of Plate 228 (fig. h).

Nicholls' comment (p. 62) is interesting:

"The figures of C. angustata on Plate 227 were painted from specimens that had been collected near Bell in the Blue Mountains, N.S.W. and wrongly identified as C. dimorpha. These specimens represent the first record of the species for N.S.W." (Neither Nicholls nor Bowden give any further particulars of this early Bell recording, and Rupp and FitzGerald do not mention it).

Incidentally, I feel a further comment on the odour of C. angustata is called for. Most authors refer to it as "musky".

Nicholls (Vict. Nat. Jan. 1939, p. 165) elaborates:

"In N.S.W. C. angustata is sometimes called "Polecats", one observer going so far as to record: 'Blowflies are attracted to it in numbers'. In the present writer's experience the scent from a few specimens is a delight, becoming 'headacy' only when numerous specimens are handled; a penalty for wasteful collecting." Later (Orchids of Australia, p. 62) he adds: "The musky odour of the flowers, though pleasant at first, is apt to become somewhat nauseating because of its strength and persistence. I found the odour "musty" rather than "musky" and definitely offensive. Perhaps it varies with the age of the flowers. Its strength certainly varies with the temperature, being apparently strongest on hot days.

In conclusion, may I suggest, along with Firth (Native Orchids of Tasmania, p. 50) a more satisfactory key to this group of Caladenias than in either Rupp or Beadle, and omitting consideration of C. praecox, the exact status of which is at present a matter of considerable doubt (Rupp, 1969, p. 155):

18. Perianth white: labellum undivided .... C. dimorpha
18^{x} Perianth dark-coloured on outside; light inside; labellum trilobed
  19. Flowers usually with a musty odour, marginal calli of midlobe of labellum ("glands") globular on plain stalks' column not bent forward .... C. angustata
  19^{x} Flowers odourless; marginal calli of midlobe of labellum ("glands") clothed with minute prickles towards the tip; column bent forward .... C. cucullata

Firth (p. 65) adds in a note:

"Caladenia cucullata is the only one .... which has labellum glands with minute teeth on their stalks (a powerful lens - or microscope is needed to observe this feature).

continued page 91

Caladenia Angustata in the Blue Mountains, N.S.W. Cont.

C angustata has glands with plain or somewhat mealy stalks. Normally this orchid is very strongly scented with a musky odour; but often this scent does not develop until plants have been kept in a confined space (such as a plastic bag) for a while."

C.K. Ingram, "La Mancha", Mt. Tomah, Via. Bilpin. N.S.W. 2758.

AN EARLIER RECORDING OF PTEROSTYLIS CONOGLOSSA W.T. UPTON IN N.S.W.

David L. Jones

In The Orchadian 2: 114 (1967), W.T. Upton published the description of Pterostylis conoglossa as a new species of Pterostylis from N.S.W. No previous records of the species were listed and the only locality given was Swansea.

From the article I gained the impression that the species was only known from a small colony at the type locality and had not been discovered previously. Consequently it came as a surprise when, while checking through a list of specimens in W.H. Nicholl's Herbarium with Bruce Muir, I. noticed the entry "Pterostylis hybrid (concinna X ophioglossa)." This is the same parentage alluded to for P. conoglossa. The locality is given as Weston which is about 25 miles from Swansea. The collector was the Rev. H.M.R. Rupp, and the date 7. 7. 30. I checked the solitary specimen and it agrees very well with the drawing by Upton. There is no doubt that the two are the same. The find raises some interesting speculation. The Rev. H.M.R. Rupp was apparently quite familiar with the hybrid and yet he took no action to name it. Why? He was not backward with similar plants such as Pterostylis furcillata, P. acuminata var. ingens and many of the Diuris. Similarly Nicholls took no action although the precedent was with Rupp, being the finder. They must have exchanged some interesting correspondence at the time.

The finding of a second colony indicates that the hybrid may be more widespread and should be looked for wherever the two parents grow together. Rupp's collection may well contain additional localities.

This brings up the final point which to me is very important. The old collections of Nicholls, Rupp, Rogers and other early workers are well worth checking over. These botanists not only covered a lot of territory themselves but they also received many specimens from people all over Australia. It should not be assumed that all useful information has been published from these collections. Much of the material has never seen the light of day and is of particular interest in regard to recent findings.

David L. Jones, 2 Kathleen Close, Bayswater. Vic. 3153.

VICTORIAN GROUP OUTING

D.L. Jones and L.W. Raynes

Very occasionally, a native orchid lover comes across an area so bountiful in orchids in both quantity and variety, that he feels he must attempt to share his pleasure with others.

This article is therefore not one of profound botanical observations, but one which we hope will bring to the reader some of our enjoyment of a very pleasant day.

The excursion in question was arranged by a few of the Victorian Group members to survey an area for orchids, on the western shores of Westernport Bay - an area in which much of the natural bushland is threatened by rapid industrial development.

After a rewarding search in the bracken near the township of Hastings, we finally succumbed to the relentless attacks of clouds of mosquitoes and retreated to Stony Point, a few miles to the south. Here the area was open and the emergence of the sun made conditions more to our liking. The spot we chose to search consists mainly of large open grassy patches with small clumps of Stringybark scattered here and there. It has a gentle slope facing the east and is only about 200 yards from the water of Westernport Bay. The orchids were obvious even from a distance. Our first find was a large colony of very robust Microtis. The leaves were much thicker than the usual type found in the vicinity, being approximately half an inch through at the base. Many had large flower spikes in full bloom. A closer examination proved it to be M. unifolia.

The next few finds came in quick succession, Caladenia dilatata grew abundantly under some trees on hard dry ridges. Some of the plants were quite small but all were sturdy and displayed their magnificant long-combed labella, trembling in the slight breeze, to perfection. Close by several colonies of Caladenia clavigera were to be found. These were tough, wiry specimens, similar to the C. dilatata, but much more colourful, with their red and brown tonings. Many had two flowers to the stem which added to the denseness of colour. The labellum of this species is quite smooth and curls under at the edges. It is held more rigid than C. dilatata and does not exhibit the tremulous characteristic to the same degree.

continued page 92.

VICTORIAN GROUP OUTING Cont.

In addition to the large colonies of these orchids found under the gums, solitary plants and small groups were scattered throughout the open grassed area. Diuris longifolia formed conspicuous colonies under the trees also. Many of the individual flowers were almost two inches across, of a deep golden yellow suffused with striking brown markings, although a few were a clear yellow with green tinges on the labellum. The only other Diuris located were scattered plants of D. maculata; their flowering period was over and all that remained were the dried and withered flowers. A great number had swollen green ovaries, which testified to the efficiency of its pollinating mechanism.

Prasophyllum was the most abundant genus at the time of our visit (early October), if not in the number of species, then certainly in the number of plants. The most conspicuous was undoubtedly P. odoratum var. album, which could be readily distinguished from a distance of several hundred feet. Its pure white flowers were densely massed along the spike. Some plants were quite short, being no taller than 6", while others exceeded 2' in height, with up to 45 flowers massed in display. As with all Prasophyllum, the flowers were extremely variable. On some the segments were quite blunt, whilst on others, the same segments were pointed. While the majority of the flowers were a pure translucent white, some had pink or red stripes over the white background. Some flower spikes were densely congested whereas others were not. None of the specimens located were scented.

On a large percentage of the flowers, the pollinia had been removed. Later in the course of the afternoon, David Jones captured a pollinating agent in the act. This was, of all things, a large clumsy crane fly and the pollinia became attached near the mouth parts of the insect.

Prasophyllum odoratum var. odoratum was also sparsely scattered throughout the area. One magnificant plant, with deep wine red petals and sepals in excess of 2' tall, was observed, and although we spent a great deal of time in searching, no others with this deep colouration were found.

Prasophyllum brainei was abundant. This species grew in small groups in the open grassed areas and was easily located, due to the pale yellowish-green colouration of the entire plant. Many were quite small, being under 6" and it was only the odd specimen that reached the maximum of 15". Unlike the previous species P. brainei is delightfully scented which no doubt is an asset to its pollination, as when compared with many other orchids, it is quite inconspicuous. The majority of flowers had a white labellum with the remaining segments green. A few plants were observed which had a delicate pink labellum, which made a most attractive combination. The labellum of this Prasophyllum is not reflexed, but rather, has a peculiar flexure, to give it the shape of a sigmoid curve. It would be interesting to dwell on the significance of this labellum shape - an aid to pollination.

The third Prasophyllum noted was P. elatum. These were slender, rather few-flowered plants of this regal species. They were of a very uniform dark colouration and were scattered individually throughout the area.

Thelymitra species were very conspicuous. Large colonies of T. antennifera were common. The sun was quite warm enough to expand the flowers fully and they resembled conical yellow balloons on their wiry twisted stalks. There were also large colonies of T. carnea, with deep carmine buds atop glaucous twisted stems. These were not open and indeed it is a species that only opens fleetingly on the hottest of days. T. ixioides and T. pauciflora also occurred as scattered individuals. A good find was several plants of T. grandiflora located near a couple of stunted Stringybarks. These were not as tall and robust as we are used to seeing, but they still bore quite large spikes of the typically azure blue, delicately veined flowers.

Also around the gums were two large colonies of Caladenia menziesii, of which many plants were in flower. A colony of these dainty orchids in flower is a sight indeed. The conspicuous white sepals contrast strikingly with the dark red labellum and erect lateral petals. A few of them had two flowers atop the wiry twisted stem. The leaf is most un-Caladenia like being broad and glabrous. A couple of tall pale Caladenia patersonii were found in the open amongst tall sedges and grasses. This orchid was quite abundant during the previous flowering season, but very few were noted on this occasion.

The final find of the day was a beauty. Four plants of Lyperanthus nigricans were found in full bloom amongst dozens of non-flowering leaves. This species which one so often sees in its vegetative state, always attracts attention when noticed in flower and this time was no exception.

The good company and the orchids provided us with a very enjoyable day. Not only was there a good selection of species but the plants we saw were in such profusion. It was not obvious that the area had been burnt over in the previous year and yet species such as Caladenia menziesii, Lyperanthus nigricans and Prasophyllum odoratum were flowering well. It was obvious from the surrounding bush that the area had been cleared some years previously. Had this provided the stimulation or was it just a good season? Les Raynes who had visited the area the previous season had noted that the flowering of the species was just as good then. Perhaps it is just the right combination for these species. Perhaps a further visit next year will tall us more.

DENDROBIUM SMILLIAE - AUSTRALIA'S FIRST BIRD POLLINATED ORCHID

R. Smythe.

On inspection of the flowers of Dendrobium smilliae I became aware of the following features : The flower is very hard and waxy, exhibiting much mechanical resistance to destruction. The flowers are somewhat cylindrical without the zygomorphic nature of the flower being strongly expressed. In other words, the flowers do not look like a typical orchid with the large lip, which is a modified petal, to allow the landing of insects, the most common pollinators of orchids. The above two features of Dendrobium smilliae suggested to me that this orchid might be pollinated by birds. Other features have since come to my notice suggesting that the flowers might be bird pollinated. These features being - (a) Lack of nectar guides; (b) Red colouration in the flower; (c) Inflorescence cylindrical, and supported on a short robust stem suitable for alighting birds; (d) Flowering on leafless pseudobulbs, making the flower readily accessible to birds.

On the basis of my observations I prepared an address to the T. B. A. N. O. S. which I will relate in brief as follows. For some reason, Dendrobium smilliae does not extend south of the Cardwell Range. There is a belief that quite a lot of our flora and fauna does not extend beyond this area. A sudden change in soil type and a thirty mile gap to the next range area have been proposed as the reason for this. Thirty mile gaps and changes in soil type should not have any noticeable effect on orchid distribution as they are epiphytes and have minute, wind-born seed. My hypothesis was as follows: I believed that one could find, over the same range as the orchid in mention, a bottle brush tree whose lower limit of distribution could be controlled by the soil type and gaps mentioned. This bottle brush tree in turn could limit the southern distribution of some nectar seeking bird. The bird being dependant on the tree for existance, as well as being responsible for the pollination of our Dendrobium smilliae. Den. smilliae would therefore be restricted indirectly by the geography of the country. This hypothesis being what it may, I suggested to our groups that this same bird might have colonised in Townsville, due to the large volume of honey flora cultivated in the various properties. With this introduction I asked members to help me find the bird. I used my plants as control plants, i.e. I subjected them to other possible mechanism of pollination, excluding bird pollination. I feel confident after using five large plants with multiple racemes of flowers in asserting that they are not insect pollinated, as no seed pods formed. Other members placed their plants in close contact with trees.

Fortunately for me, the wife of one of our members, Mrs. G. Scott, was awaiting the arrival of her first baby and was therefore not as active. This gave her the chance to observe the visit to Dendrobium smilliae of the yellow honey eater (Meliphaga flava).

This observation was then supported by her husband who inspected the flowers and noticed disturbance of the anther caps. The flowers subsequently developed two seed pods.

I have also mentioned my hypothesis, now in part fact, to the wild life preservation society and have an enthusiastic group of ornithologists hot on the trail.

I would ask members of A.N.O.S. residing north of Cardwell to report to me any related findings that they might observe.

R. Smythe, James Cook University of North Queensland. Townsville, Qld. 4810.

GROUP NEWS - DARLING DOWNS - FURTHER COMMENTS ON THE DENDROBIUM MORTII X.D. CUCUMERINUM CROSS

Mr. and Mrs. E. Mogg.

A native orchid found on the Darling Downs by Mr. & Mrs. D. Walters seems to be a natural hybrid of Dendrobium mortii and D cucumerinum. Since their find, I collected one from the same area and on flowering, the cross of the above two orchids is almost assured. Whereas the Walter's plants favoured the Den. mortii as far as the flower was concerned, our plant favoured the Den. cucumerinum in both colour and form.

The plant itself is pendulous and the leaves are 2" - 3" long, distinctly grooved and curved. The leaves project straight ahead of the stem and have a coarse feel to the touch. The flowers are produced on racemes of 5 - 6 blooms and are the same size as the Den. cucumerinum, and whereas the plant that favours the Den. mortii in flower form and colour is smaller, the plant itself is the same. This hybrid flowers one or more in season.

We thought our plant was the only one to favour the Den. cucumerinum flowers until a visit to another collector recently. He was lucky enough to have found one the day before.

HANDBOOK ON ORCHID NOMENCLATURE AND REGISTRATION

This 120 page book has been prepared by The Handbook Committee of the International Orchid Commission on Classification, Nomenclature and Registration. Available from the American Orchid Society, Inc., at U.S. $2.50 each. There are two Australian members of the Commission, Mr. W.R. Smoothey, President of the Australian Orchid Council and your Editor, Mr. M.J. Corrigan.

NEW GUINEA PAPHIOPEDILUM VIOLASCENS SCHLTR.

N. Howcroft

One of New Guinea's beautiful orchids very much in the limelight at present, is the "Slipper" orchid, Paph. violascens Schltr., of the section Blepharopetalum. Apart from its beauty this orchid has attracted a lot of attention over its nomenclature and because of the discovery of new areas where the plant grows.

The orchid described briefly in this article comes from the Garaina area near the border between Papua and the Territory of New Guinea, close to the Waria River. This is a recent discovery and follows the finds made near Kui on the Morobe coast and on Kar Kar Island. (Refer map).

The Garaina specimen is described as follows :

Plant : Terrestrial with a short rhizome and thick roots densely covered with hairs, somewhat shaggy in appearance. The leaves are erect and/or spreading, oblong-lanceolate, 4-6, tesselated dark green and light to grey-green, the apex is cleft and often with three pointed tips, upper surface smooth, underside smooth, surface grey-green, the leaf is slightly keeled with a conspicuous midrib; dimensions of leaf 13.0 - 21.0 X 2.8 - 4.0 cm.

Inflorescence : Scapes erect, cylindrical, hairy, dark brown to black, 14.0 - 25.0 cm. long, one flowered, bract at base of ovary greenish brown and slightly hairy, 1.5 - 2.0 cm. X 1.0 cm. wide, flattened out. Ovary 6.5 cm. long, borne on a very short pedicel, yellow with dark purple ridges, small hairs on surface. Flowers: erect, 6.0 - 7.5 cm. across vertically, petals 3.9 X 1.5 cm. - 4.5 X 1.7 cm., oblong linear, ligulate, deflexed, fine dark hairs around the edges, light magenta or purple at base, becoming defused to pink and white at apex, striated with parallel purple veins. Dorsal sepal broadly ovate; acute, symetrically striped with magenta, green and black, borders pink to white, face smooth, dorsally more green and brown, a slight keel, ciliate; the entire segment is slightly bent on the margins creating a shallow hood, dimensions 3.2 X 2.8 cm. Lower sepal (synsepalin) ovate-Lanceolate, two fine keels with brown hairs, finely ciliate, slightly hood shaped; face smooth, usually a lighter colour than dorsal sepal, 2.4 X 1.5 cm. not flattened. Labellum fairly large, pouched or helmet shaped, brown and olive green, shiny, infold lateral lobes, oblique, oblong lanceolate, more or less obtuse, pouch veins outlined throughout, dimensions 4.4 cm. long X 2.7 cm. wide at opening, finely ciliate on the margins. Column to staminode 0.8 cm. long, more or less 0.4 cm. thick, sometimes ciliate on top, creamy-white sometimes flushed pale green; Staminode approximately reniform to lunar crescent shape, slight cleft on the mid-dorsal section; organ divided by a very shallow channel, sometimes almost lacking, ventrally incurved, margins mildly crenate, dimensions 1.2 cm. wide X 1.0 cm. from top to tip of lateral lobes; fine white hairs on face, green mottle and veins on a cream yellow to white base. Stigma rounded, globe shaped, diameter 0.75 cm.; Anthers fairly large, reniform, bilobed, sticky, yellow.

Flowering period : In Schlechter's description of Paph. violascens Schltr., he observed flowering occurred in May, 1908, May, 1907 and June, 1909, each Locality varied 100 - 300 meters in altitude.

Garaina specimens : When found in October, 1968, were producing flowers, some were open and some dying. It was observed that there were many seed capsules about, ranging from newly formed, down to freshly opened and old ones; from this it appears that the plants flower sporadically throughout the year in their native state.

Specimens kept in the Bulolo Forestry School's shade house, continued to produce flowers during the following months after collection; and to date some will flower again by December, judging by new flower buds developing.

Kui specimens : Were collected several months earlier than the Garaina specimens but these had just finished flowering.

Kar Kar specimens : Were collected flowering, by members of the Lae Botanic Gardens and Herbarium, at the time of writing this article very little information on the time of flowering was available.

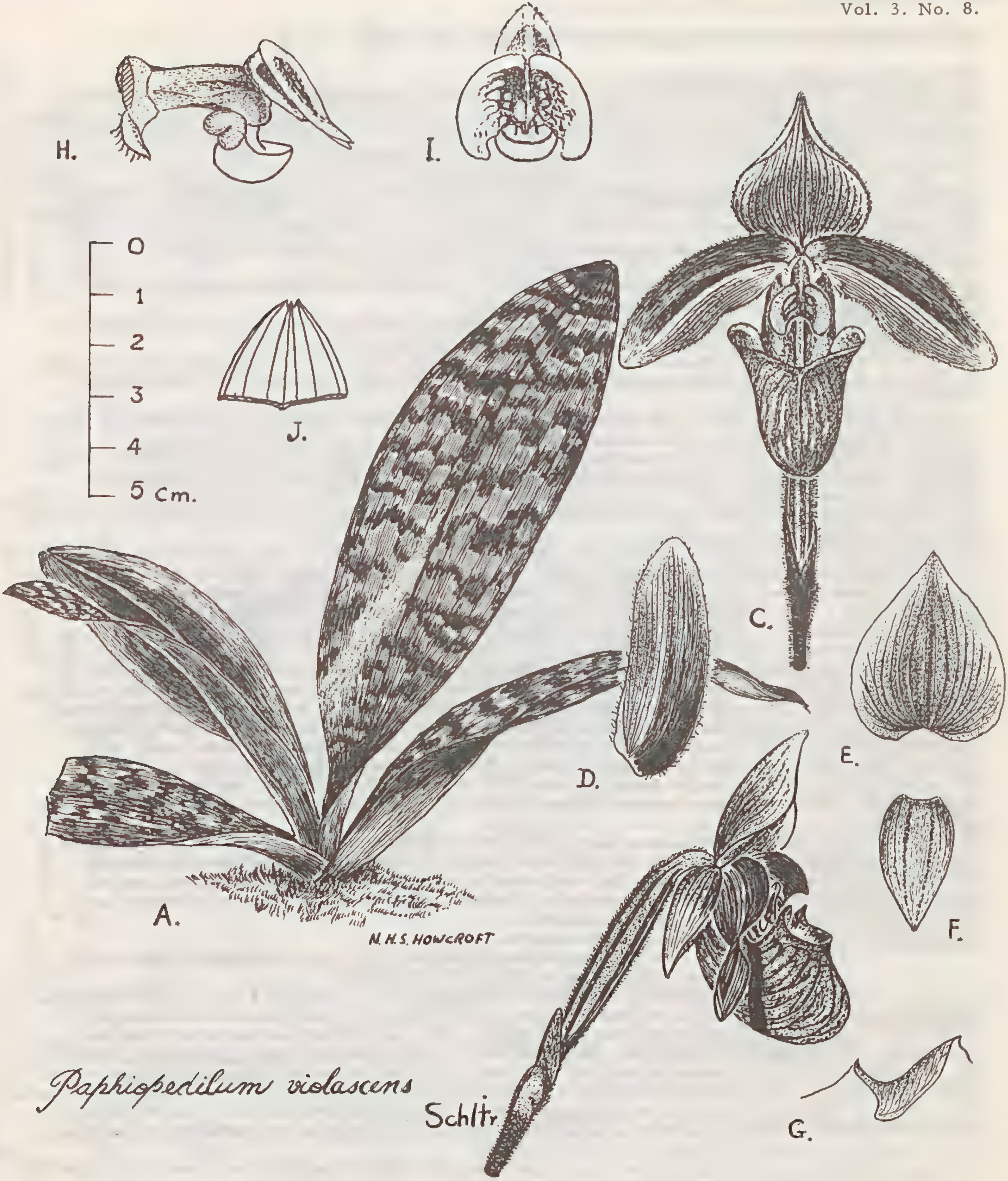
Distribution : Paphiopedilum violascens Schltr. - is found in West Irian and its range has now been extended to Kar Kar Island on the New Guinea Territory's coast near Madang. Recent discoveries now include an area outside Kui on the Morobe coast and in the Waria Valley near Garaina, close to Papua.

Schlechter reports his specimens from the Finistere Ranges, the Mabore area and Govidga Creek. The latter two have not been found on Army maps or present day maps and it is possible that these names have long since been altered with the change from German to the present administration.

Recent finds of reputedly new species of "slipper" orchids on Bougainville, are possibly varieties of Paph. violascens Schltr. This will be briefly discussed later in "Notes and Comments on Distribution".

Altitude : From present information available the range starts from approximately 2,500' above sea level to 3,900'; there are indications that the species range might extend up to 4,000' or more, but since these are not definite, only the above figures can be quoted with some certainty.

Continued page 96.



PAPHIOPEDILUM VIOLASCENS Schltr. – KEY TO PLATE

A. Reduced ¾ natural size to scale.
B. To scale natural size, lateral view flowers.
C. Front view of flowers to scale, natural size.
D. Back view of petal, to scale, natural size.
E. Dorsal sepal, back view, to scale, natural size.
F. Lateral synsepalin, back view, to scale, natural size.
G. Inside lobe of labellum, natural size.
H. Lateral view of column showing pollen and stigma X2 to scale.
I. Front view of staminode X2 to scale.

NEW GUINEA PAPHIOPEDILUM VIOLASCENS SCHLTR. Cont.

Notes and Comments on Distribution

New species - As mentioned in the section on distribution, Paphiopedilum have been found on Bougainville Island and there are supposed to be two new species, Paph. wentworthianum Schoser et Fowlie and Paph. bougainvilleanum Schoser et Fowlie. It is a widely shared opinion however, that both of these species are synonymous with Paph. violascens Schltr. Again it is of interest to note that a colour slide of the Garaina Paph. violascens Schltr. specimen in flower was shown to one of the authors of Paph. wentworthianum and identified by him as Paph. wentworthianum. The difference is said to be in the features of the staminode. At this stage it should be mentioned that among the Garaina specimens brought back, there was considerable variation among the flowers, this includes all floral segments, colour and shape. In spite of this mosaic of individual characteristics, one could see these were the one species.

No doubt there will be a lot more written by others in the future on the nomenclature of the Paphiopedilum here, as it is by no means settled yet.

Geological association - Paph. violascens Schltr. appears to be associated with two geological formations, (1) the Papuan Ultra Bisics (2) the Basic Volcanics. (Refer map).

After the discovery of the Kui area's Paphiopedilum it was expected that the same species could be found at the other end of the geological formation, which is the Papuan Ultra Basic Strip, commencing near Garaina.

A special lookout was kept for this plant during a botanical collecting trip into the Garaina region and sure enough, the plant was found and in large numbers, around 3,000' altitude.

Habitat - Garaina and Kui specimens were found growing in root peat composted with leaf litter. Garaina specimens grew in what has been described as acid pockets of soil in light Riverine Forests, complete shade, with a high surrounding shade index. The soil was high in humus, moist and well drained. Kui specimens were found in dense shade growing on the rock face of a crevice with roots in litter, moss and peat.

Schlechter observed his plants growing on "the rim of escarpments in the ranges or on declines and in small humus covered holes of great rocks. They always grow in well drained soils, which one could well describe as root peat". He also noted that the plants preferred half shadow.

Cultural notes : The Garaina "slippers" have been growing successfully under cultivation at Bulolo for a little more than a year since collection. All plants are growing in deep leaf litter partly decomposed to completely rotted, and in cool shaded positions. The plant specimens first collected were grown in a specially designed Sarlon cloth, high shade house; this house was designed to reproduce several types of environment found in New Guinea, for the Forestry College students to study. The orchids were placed in the most dense shade section which represented shade conditions found in the mid-montane forests of New Guinea; watering was fairly regular carried out with a fixed set of fine mist nozzles situated on the centre spar of the roof; this produced the misty wet conditions experienced in the mid-montane forest regions.

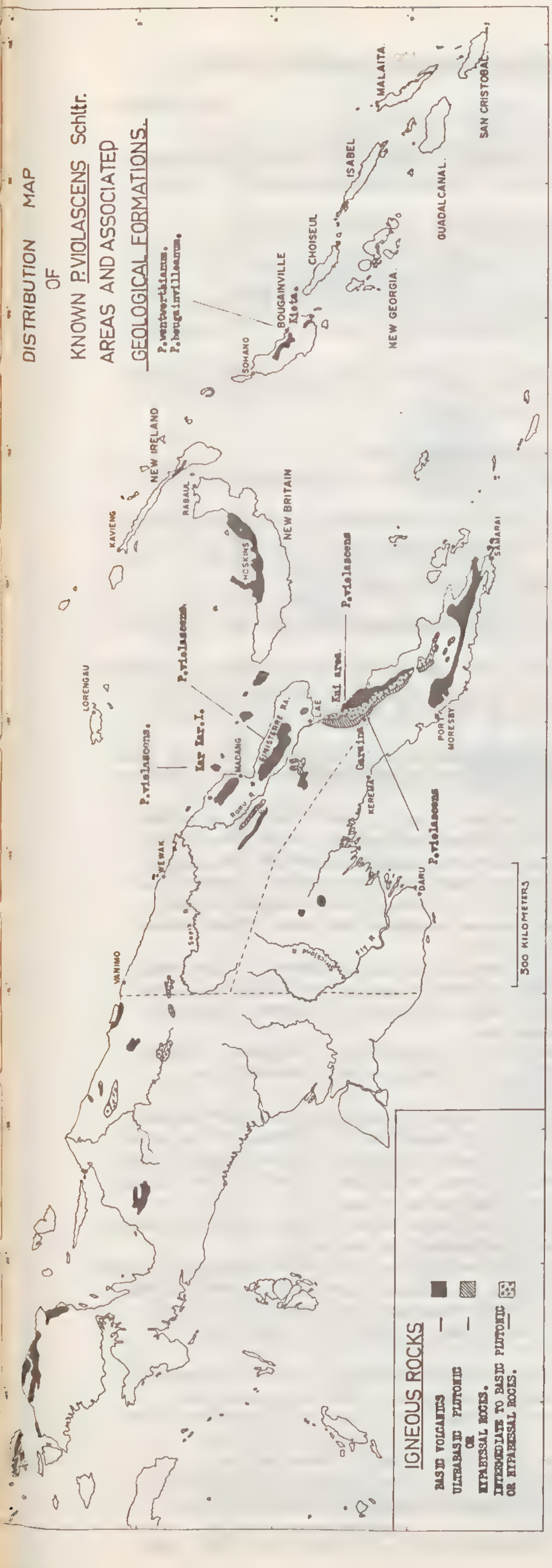
The shade cloth used is a double layer of about 85% shade mesh and whilst this supplied a great deal of shade, a fair amount of protection was given to the orchids by ferns, Begonias, Taro and other plants.

The author's specimen is grown in a plastic 12" pot of leaf mould with a surface layer of moss. The pot is sitting in a shallow dish of water and the plant is protected by a dense growth of plants at the base of a Rain Tree. The conditions here are generally cool and moist but at times subjected to drying winds. Despite the winds the plant is healthy and it is hoped a new flower bud will be produced in the near future.

References - Pfitzer E. Orchidaceae pleonandre.
Fowlie J.D. "A New Species of Paphiopedilum from the Island of Bougainville". The Orchid Digest 329 (1968) 282-285½.
Stiles R.A. "Species of the Genus Paphiopedilum" A.O.R. 34 No. 2, (1969) 848-85.

Acknowledgements - The author wishes to thank the following for their valuable assistance. Without their help this article would not be possible. Mr. A. Gillison for plant material and information of the Waria Valley area, collected for the description of Paph. violascens Schltr. Mr. L. Clifford for plant material and information on the specimens of Paph. violascens Schltr. collected near Kui. Mr. Schultz of North Balgowlah N.S.W. Australia, for his valuable assistance in translating the German script on Paphiopedilum violascens Schltr. for me. Mr. B. Gray Forest Entomology Section, Bulolo, for the use of maps and advice on presentation of material.

N. Howcroft, C/- Forest Office, Bulolo, T.P.N.G.



A NEW ORCHID FOR SOUTH AUSTRALIA

Marian Beek

The genus Chiloglottis was not represented in South Australia until two years ago, when Kath Alcock, a friend of mine, visited me one day with the following question : "Do you know a 'greenhood' with only two oval leaves?"

I took her to my bushhouse and picked up a pot with plants of Chiloglottis reflexa which I happened to have. "Do they look like this?" I asked. "Yes" she exclaimed. "I went out into the pines yesterday and found a colony of nine plants and four of them have buds".

That was in June, 1968. As the plants were budding, they could not be Chiloglottis reflexa which is an autumn flowering species. So they would be one of the others, but which one? We just had to wait. It was most exciting.

The orchids grow in a pine forest at Comaum, in the south-east of South Australia, very close to the Victorian border, and only a five minute walk from Kath's farm. She kept a close watch on her precious find and much to her dismay she noticed that the rabbits were just as fond of them. Something had to be done to protect the orchids and she put wire netting over, and around them. Then, another menace threatened us. Blackbirds trying to creep in and scratch underneath the netting. It was most annoying. Still, despite all these troubles, the most exciting time arrived, the first flower opened in September.

With the help of Rupp's book, "The Orchids of N.S.W." we managed to identify it as Chiloglottis trapeziformis, and Ray Nash, who visited the spot later on, confirmed the determination.

Chiloglottis trapeziformis occurs along the coast of N.S.W. and in north-eastern Victoria. There are no records of the orchid being found between Comaum and eastern Victoria. How then is it possible that they suddenly turn up in South Australia? Can it be that the winds have carried some seeds? Or would birds have been responsible for it? It is one of nature's mysteries.

In the meantime the little colony is growing and last year (1969), they multiplied to 19 plants, of which ten flowered. For the time being the orchids are safe, but the time will come when the pines have to be cut down. What will happen to the orchids then?

Marian Beek, 12 Merino Street, Naracoorte, S.A. 5271.

OPENING OF THELYMITRA FLOWERS

P. H. T. Uhlherr

S.C. Clemesha (The Orchadian 3(7), 79(1970)) observes that "...warmth seems a significant factor in the opening and closing of Thelymitra flowers". The author can substantiate this statement with the following observations on Thelymitra antennifera Hook. f., and on T. ixioides Sw.

1. A plant of T. antennifera was collected in a closed condition on a dull, rainy day. This plant was taken at night on the floor of a car, with a stream of heated, outside (drizzly) air directed at it. Both flowers opened fully in total darkness.
2. A plant of T. ixioides was placed in front of an

continued page 100

THE GENUS PACHYSTOMA BI. IN AUSTRALIA - Pachystoma holtzei (F. Muell.) F. Muell.

Ian Walters

The single member of the genus Pachystoma Bl. found in Australia, P. holtzei (F. Muell.) F Muell., was found originally in the Northern Territory and described by Ferdinand von Mueller, as Eulophia holtzei F. Muell., this name later being corrected to Pachystoma holtzei (F. Muell.) F Muell. by the same author.

A recent collection of several plants from north Queensland extended the known range of distribution of the species. Collected plants were not in flower at the time and this single plicate leafed orchid was assumed to be a species of Eulophia R. Br., which it closely resembles vegetatively. Subsequent flowering of plants disclosed it to be a species of Pachystoma Bl. and it was positively identified as P. holtzei (F. Muell.) F. Muell. by A. W. Dockrill of Lae, who described it as identical to specimens of that species from the Northern Territory, the original recorded location.

The genus, a member of the subtribe Phaiinae, is a small one, of some 8 species, found in India, China, through Malaysia to New Guinea, Australia and New Caledonia. The following description of P. holtzei (F. Muell.) F. Muell. in general, is typical of the genus.

Pachystoma holtzei (F. Muell.) F. Muell. Victorian Naturalist 8 (1892), 180.
Eulophia holtzei F. Muell. Victorian Naturalist 6 (1889), 55.

A terrestrial, sympodial plant with annual subterranian corm-like pseudobulbs. Each pseudobulb is two lobed, sometimes with an additional side shoot, the lobes growing away from each other, each lobe almost cylindric, pointed, smooth, almost white. The inflorescence is produced at the extremity of one lobe and the following seasons growth at the end of the other.

The new growth develops seasonally, with the development of the new leaf. The tip of the previous pseudobulb develops into the new leaf, from the base of which grows the new pseudobulb. The old pseudobulb withers and by the time of flowering, has gone.

Roots few, from below leaf stem. Leaves one or two, green, with the basal one smaller, sometimes appearing as a bract. Major leaf up to 40 cm. long, narrow, shortly petioled, the blade plicate, sharply pointed, up to about 1 cm. wide. Foliage grass like and difficult to observe in its native habitat, deciduous.

Inflorescence tall, slender, up to 40 cm. high, with up to five amplexicaule bracts. Flowers few, up to 8 on the specimens observed, set closely together on the apical portion of the spike. Flower bracts about 8 mm. long, 2 mm. wide, acute, narrow.

Flower pedicel slender, pendulous, 5 - 6 mm. long, barely 1 mm. thick. Ovary large, swollen, to 10 mm long, 4 mm. diameter at middle. Pedicel and ovary finely pubescent with fine white hairs. Flowers barely opening, apparently self pollinating. Lateral sepals about 10 mm. long, swollen at base, mentum like, about 3 - 4 mm. wide at base and tapering to a point, curved and channelled along length. Dorsal sepal slightly longer, about 12 mm. long, boat shaped, about 3 - 4 mm. wide, theapex pointed. Petals almost as long as lateral sepals, narrow, about 1 mm. wide, almost linear, but tapering towards the pointed apex, curved.

Column arching, about 8 mm. long, slender, terete, terete, barely 1 mm. diameter. The apex knob like, about 2 mm. X 2 mm., with short, blunt, rounded column wings about half the height of anther cap. Anther pubescent, dark purple-brown, about 1 mm. X 1 mm. X 1 mm. Column also pubescent. Pollinia unequal, grouped together, 8 in number.

Rostellum a flat platform, the projecting triangular tip somewhat canaliculate. Stigma a viscid surface, almost square, set between the column wings in the face of the column beneath the rostellum, with the lower lip projecting slightly.

Column with a short column foot, about 1 mm. long, to which is firmly attached the three lobed labellum. Labellum curved, as long as the petals, the un-spread labellum 2 - 3 mm. wide, and 10 mm. long. Lateral lobes erect, broad, rounded, about 2 - 3 mm. high at broadest point, 1/3 length from tip, tapering to base of labellum, (which is about 2 mm. wide) and about 10 mm. long. Mid-lobe almost rectangular when spread, about 4 mm. long and 2 mm. wide.

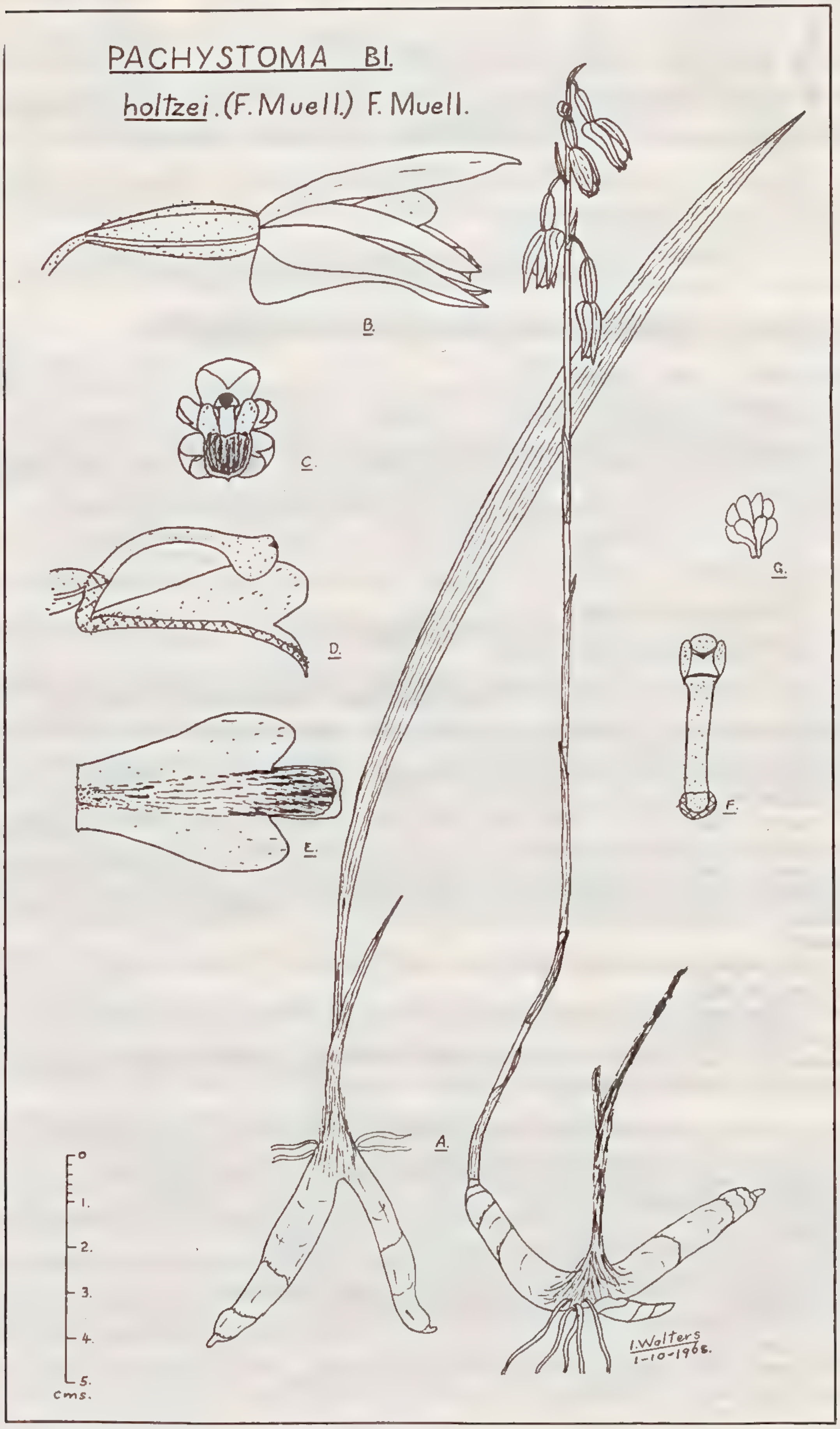
Disc of labellum with a series of vague lines of papillae extending from almost apex of mid-lobe to base of labellum, where the papillae are very small and mingled with fine hairs.

Papillae largest towards centre line of apex of the mid-lobe, although the tip of the mid-lobe is bare, more or less arranged in vague lines, decreasing in size of papillae from centre line, with a line of small papillae at base of each lateral lobe. Labellum is a dull pink-purple colour, with the disc being a bright green-yellow colour. Sepals and petals also pink-purple with some fine minute white hairs on outer surface.

Distribution: Northern Territory and North Queensland. In North Queensland, found in lowland Tea Tree swamps at the foot of the Cardwell Range. Because of the grass like nature of the plants and the difficulty in locating plants in long grass, the distribution is probably greater than the small area investigated.

Flowering period: Apparently September to October. The described plants flowered in cultivation early in October, but a trip to the natural habitat failed to reveal plants in flower at that time. Flowering time in the wild is probably later, with the advent of the summer rains.

Ian Walters, DeCourcey Street, Mundingburra, Townsville, Qld. 4812.



PACHYSTOMA HOLTEZI – KEY TO PLATE

A. Plants to scale.
B. Flower from side................................ to scale X5.
C. Flower from front, expanded.....to scale by approx. 4.
D. Column and labellum halved................. to scale X5.
E. Labellum spread..............................to scale X5.
F. Column from front much enlarged.
G. Pollinia much enlarged.

Opening of Thelymitra Flowers. Cont..

electric radiator, where its solitary flower opened almost fully. In an attempt to open the flower completely, a 500 watt photoflood lamp was used instead of the radiator. This had no effect. The following conclusions can thus be drawn :

1. Light is not required for the opening of *Thelymitra* flowers. 2. Heat alone, is not sufficient to obtain full opening of the flowers. 3. High humidity is probably a pre-requisite for complete opening.

These conclusions, of course, are valid only for the species observed. However, the author has also observed *Thelymitra pauciflora* opening in the field. This species will not open in sunny, dry weather, but will open in warm, moist weather.

Peter Uhlherr, 8 Baringa Street, Mount Waverley, VIC. 3149.

ASYMBIOTIC ORCHID SEED GERMINATION - QUESTIONS AND ANSWERS

F. Cicurel
B.Sc. Agr. M.A.I.A.S.

Refer The Orchadian Vol. 3. No. 4 p. 48.

The following are the answers to the questions raised in your letter of 2. 12. 69 (H.A. Jay).

1. The optimum time for *Sarcochilus* species is 6 months. This species is slow growing. The pod's life (from flower pollination to pod bursting) is about 9 months, which is similar to *Cymbidium*. The maximum deduction of time for any pod of any genus of the orchid family should not exceed 1/3 of the pod's life, otherwise the embryo's would be too young and may not germinate. Under the microscope, these premature embryo's would look smaller, with a thin seed testa.

2. The approximate number of seedlings in a flask that : a. Has not been reflasked - from 1 - 10,000; b. Has been reflasked - at least 50 plants. Sown flasks of less than 50 plants are reflasked if necessary. Some people leave it to my discretion, some insist on a reflasking in any case and some are against reflasking such flasks.

My opinion is that reflasking must be decided when seedlings are ¼" long. If the seedlings are crowded, they must be reflasked in every case.

If the sown flasks have 50 plants or less and the plantlets are well established and vigorous, they should not be disturbed. If the seedlings are weak and slow, they must be reflasked. When available, large "White Heather" whisky bottles are used, these contain up to 120 plants. The smaller bottles contain up to 70 plants reflasked.

3. Yes, it is possible to have some seedlings reflasked and to allow the remainder to grow in the original flask. Provided the remaining plantlets are not too crowded, they will grow reasonably well if enough moisture is left over. Otherwise they will grow very thin and will be no good.

4. a. Yes, it is possible to reflask a number of flasks of seedlings from one sown flask.
   b. Could you order 1 sowing and say 4 reflasks from it? No, because both sowing and reflasking are done in excess of requirements to cover any flasks which are not up to standard, or may attract a contaminant. In addition, the normal sowing plus re-flasking fee is less than each one of them paid separately.

So, practically, it just does not work to order such as the above. Orders must be : (X) Flasks sown or (X) flasks re-flasked.

5. The remainder of the seed of all pods used for embryo culture is dried, packed in blotting paper and belongs to the client.

Seed is usually stored in a seed bank in dry and cool conditions ready to be used again if required. Usually nobody bothers to collect it when the flasks are ready for issue, or to ask for it from the beginning.

I most certainly have no use what-so-ever for any seed stored, and if the breeder or the owner of the seed asks for it, I send it back with the viability report. I have to mention here that viability being the ability to germinate, the microscopical examination of the seed is not always enough to assess the viability as sometimes seed looks viable, but is in fact, unable to germinate. Example: old seed, *Cypripedium* seed, low viability seed and some crosses which are microscopically viable (apparent viability), but physiologically not viable (real viability).

6. The approximate time between sowing and the return of the flask after a. sowing, b. re-flasking of - *Dendrobium kingianum* 9 months, *Sarcochilus falcatus* 12 months.

NOTE. It is extremely important to send green pods, picked early enough so that no cracking will occur up to 10 days from despatch. Pods are sown up to 7 days from reception. If viable, the production is guaranteed if no cracks are present on the pods, otherwise the cross must be seed cultured, which involves some risk because of seed disinfection.

F. Cicurel.

ns

THE ORCHADIAN

JULY, 1970 PRICE: 30 cents PAGE 101.
VOL. 3. NO. 9.

Published by The Australasian Native Orchid Society

Patron:	Sir John Hall Best	Vice Presidents:	C.K. Ingram
President:	R. G. Napier		L. Bradford
Hon. Secretary:	H. Jay	Editor:	M.J. Corrigan
Treasurer:	E. Marygold	Asst. Editor:	M. Spence
Records Sec.:	D. Dawson	Immediate Past President:	Eric Gordon

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

Registered at the G.P.O. Sydney, for transmission by post as a periodical.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
26 OCT 1972

MEMBERSHIP.

Members will be interested to know that our membership continues to grow to an all-time high. In the next issue we will publish actual annual figures since foundation of our Society.

ANNUAL GENERAL MEETING - 12th SEPTEMBER, 1970

The Annual General Meeting of the Society will be held in Sydney on the above date. The venue will be the offices of our Immediate Past President, Eric Gordon, at 263 Goulburn Street, Sydney at 11.00 a.m.

ANNUAL ELECTIONS

Financial members are advised that the closing date for nominations has been changed from that previously published in The Orchadian. As specified in your Nomination Form, recently received, the date is now the 27th. August.

MEMBERSHIP RENEWAL

Members are again reminded that subscriptions to the Society were due on the 1st. July. Assist your Council to continue your work and post that subscription to the Society at P.O. Box C 106, Clarence Street, Sydney, N.S.W. 2000.

AUSTRALIAN NATIVE ORCHIDS - By Leo Cady & E.R. Rotherham

Your Council has arranged a most advantageous offer to members of A.N.O.S. following the very recent publication of a new orchid book which will be of interest to all native orchid lovers. This is another title in the now universally known Reed Colourbook series. It will be specially welcome because of the relative scarcity of illustrated books about our beautiful native orchids. Over 100 orchids from all over Australia are photographed in full colour and the collection provides a balanced survey of the subject with a readable, yet comprehensive informative and authoritative text. Post your cheque for $3.95 each, to our Society to reach us before 1st. October, 1970. We hope to receive a copy for review very soon.

GROWING ORCHIDS - By Walter T. Upton

This recently published book is a must for all orchid lovers, especially when the retail price of 35¢ is considered. 66 pp. with 11 black and white drawings and 8 pp. in colour make this book a bargain. It measures $3\frac{1}{2}''$ x $5\frac{1}{4}''$ and contains information on the cultivation of many species of orchids with a special section on Australian native orchids. Contents include - About the Orchid, Housing, Orchids in the open, Orchid Culture, Potting, Watering, Feeding and Resting, Pests and Diseases, Flowering, Orchids in Cultivation, Australian Native Orchids, New Zealand Native Orchids, South African Native Orchids. Published by Rigby Limited as a Rigby Instant Book, number A6945, this little gem is available from most newsagents and book shops.

A. N. O. S. NEWS - DARLING DOWNS GROUP.

The following material has been extracted from the Darling Downs Group "Native Orchid News".

"A New Discovery - Dendrobium mortii F. Muell. X D. cucumerinum McLeay".

Approximately two years ago we found the first plant quite by chance of what we thought to be a small plant of Dendrobium mortii, with short, thick, curved leaves or pencils. It was not until it flowered that a difference was noted. Since then we have collected numerous plants, and just recently we flowered fourteen of them.

The flowers are produced on racemes having five or six blooms and are quite varied in size and colour, however, the shape is generally the same. The sepals and petals have D. mortii characteristics and are pale green to pale yellow, some having the red stripes of the D. cucumerinum. The labellum is similar in shape and colouring to the D. cucumerinum. By these characteristics we presume the plant to be a natural hybrid of D. mortii and D. cucumerinum. The specimens we found were from scrub where D. mortii is very plentiful and there is a good sprinkling of D. cucumerinum. The plant growth is similar to that of D. mortii but shows a tendency to throw aerials. In fact, one specimen we found had thrown an aerial which took root on a tree about two feet away from the parent plant and had grown into quite a nice specimen.

It is most surprising that this orchid has not been found and recorded previously in view of the number now being collected, as we know of approximately thirty plants that have been found in the vicinity of Toowoomba. The type of dry scrub where we found our plants has been apparently overlooked by collectors.

Some plants have been sent to experts for classification and we are awaiting the outcome with interest.

Mr. & Mrs. Walters

"Parasarcochilus weinthalii (F.M. Bail.) Dockr., Our Local Gem"

Most of us will know this beautiful orchid as Sarcochilus weinthalii, however, it has recently been classed as a Parasarcochilus, along with spathulatus and hirticalcar. I class this orchid as local because it was found near Toowoomba back in the early part of this century.

Many references on Parasarcochilus weinthalii class it as a rare orchid which is not yet available from nurseries. The latter part of this statement may be true but the orchid has been reported from the Dorrigo and Kyogle areas in New South Wales and in Queensland it can be found around Killarney, Toowoomba, Ravensbourne and as far north as Jimna.

The flowers, although small, up to half an inch in diameter, are very variable in colour, the more general being yellow spotted with purple. The yellow itself is variable, ranging from near white to fairly bright yellow. The spots also vary from reddish to purple and these vary in number. I have seen four plants on the same branch all different. The whiter flowered plants seem to come from the south, the whitest and largest I have seen coming from the Queensland - N.S.W. border area. I have never seen a plant from Dorrigo or Kyogle so someone in those areas may be able to tell us more about them. I have also found that plants from north of Toowoomba are smaller.

There is a pure yellow form of this orchid which has not been mentioned, to my knowledge, in any reference on the plant. They are not plentiful and I have only heard of about a dozen being found. I have flowered nine for three seasons now but one I sent north seems to have reverted back to being spotted. I have tried to find the varietal name for the yellow form but with little success. Someone did say it was "Patterson's variety" but of this I am not sure. Once again, someone may enlighten us further.

Parasarcochilus weinthalii is not an easy plant to find in the bush as it usually grows in conjunction with Sarcochilus olivaceus, S. falcatus and S. dilatatus. It is usually recognised by the colour of the leaves - being a lighter green than the Sarcochilus - and also by the roots, which are whitish. The dead flower spike of the Sarcochilus falcatus is black whereas that of the Parasarcochilus weinthalii is brown

Like most Sarcochilus, cultivation of this orchid is not easy. Potting is not at all successful. I have found the southern tree fern the most successful host. Further, I have found that clumps of the orchid settle down far better than do single plants and also that small plants really struggle to survive.

Crosses have been made with Parasarcochilus weinthalii, but I have not seen, as yet,any improvement in the flower. Generally speaking, it "self's" easily, as many plants when collected have seed pods.

In conclusion Parasarcochilus weinthalii would be one of the most spectacular of our local orchids.

R.S. Hill

(The above article from a Darling Downs Group newsletter, should have a nomenclatural point made clear on line 3. The author is, of course, referring to Sarcochilus spathulatus and S. hirticalcar. Editor).

RECENT RECORDINGS

C.K. Ingram

Members will be interested in the discovery of Corybas fimbriatus and Pterostylis laxa from near Botobolar, N.S.W. recently.

UNIQUE PERFUME IN PRASOPHYLLUM FIMBRIATUM

David L. Jones

One sunny day in March 1970, I noticed a very pleasant perfume as I entered my glasshouse. The perfume was quite strong and was easily traced to its source - a potfull of flowering plants of *Prasophyllum fimbriatum*. At a close distance the scent was almost overpowering but still very pleasant. It was easily identifiable as a lemon scent, being identical with the aroma from crushed leaves of "Lemon Scented Gum", *Eucalyptus citriodora* and "Lemon Scented Verbena", *Verbena citriodora*.

As far as I know this scent is unique for Australian orchids. Mr. J.H. Willis, whose olfactory powers are well known, has only noticed a faint lemon scent in *Prasophyllum odoratum*. He tells me the strong lemon scent is due to the aldehydes citral and citronellal.

Perfumes are well known in the genus *Prasophyllum* section *Euprasophyllum*, but have not been reported previously in the section *Micranthum*, although I believe *Prasophyllum striatum* also has a rather obnoxious odour. There is little doubt that the perfume is an aid to pollination and the unique nature of the odour suggests some specific insect is involved. Workers in the Sydney area should keep a watch out for this.

While the spikes were at their best I carried out a couple of small experiments to learn a little more about the species. In the first experiment my wife and I observed the effect of temperature on strength of the odour. It first became apparent at about 65°F, and increased in intensity until at 75°F, it was very strong. Once again the release of the perfume probably coincides with the increased activity of insects at higher temperature. The second experiment was to see if the responsible insect was active in my area at this time of the year, and conversely to see if the insects which pollinate *Prasophyllum morrisii*, *P. archeri* and *P. despectans* are effective on *P. fimbriatum*. These insects are quite common here as all three orchid species occur naturally in the area.

I placed all of the pigmy *Prasophyllum* I had in flower in the backyard, under a patch of gums. These included *P. morrisii*, *P. despectans*, *P. nublingii*, *P. fusco-viride* and *P. fimbriatum*. It was a perfect autumn day with only a light breeze and a temperature of 72°F. The lemon fragrance on the *Prasophyllum fimbriatum* was very noticeable.

The small flies were seen on all species except *P. nublingii*, but pollinia removal was only seen on *P. morrisii*. While the flies visited the *P. fimbriatum* they did not seem to be specifically attracted to it, nor did they appear to know what to do, once on the spike. They seemed content to simply sit on the stem or ovary. None were seen on the labellum and none were seen to enter the flower to seek nectar. They also seemed to be a bit lost on *P. fusco-viride*, while *P. nublingii* was ignored completely. On the other hand, both *P. morrisii* and *P. despectans* were worked actively. Among other things these results tend to indicate that the species has a rather specialised pollination relationship which is probably related to its unique odour.

David L. Jones, 2 Kathleen Close, Bayswater, Vic. 3153

A MEMBER'S COMMENTS

Lloyd Russell

Just a comment on Steve Clemesha's contribution on page 63 of Vol. 3. No. 5., of The Orchadian. I personally think this is one of the best descriptions for those interested in cultivating orchids. He has given general background, habitat, cultivation, advantages, etc., which is a must after *all* descriptions of orchids, i.e. if one is to attempt cultivation.

I sincerely hope we can see more in future issues, especially with epiphytes.

Lloyd Russell, 17 Oak Street, Normanhurst, N.S.W. 2076

A.N.O.S. NEWS - VICTORIAN GROUP

The following has been extracted from the Victorian Group Bulletin for the interest of all members.

ORCHIDS OF AUSTRALIA - W.H. NICHOLLS.......Some of our members were priviledged to attend the launching at the Windsor Hotel in late November, of W.H. Nicholls' new complete edition of "Orchids of Australia". As you all probably know, this book was edited by two of our members, Bruce Muir and David Jones.

To mark the occasion, Mr. R.T.M. Pescott, Director of the Royal Botanic Gardens, delivered an address to those present. Mr. Pescott has been kind enough to make available a copy of his address for publication in our journal. We have reprinted this below, as we feel that many of the comments contained in this address will be of great interest to our readers.

ORCHIDS OF AUSTRALIA

The word "Orchids" to some of us - at least to those that are showing grey hairs or perhaps no hair at all - savours of something really romantic. I have reservations as to whether this applies to the same extent to the more modern generation of today.

continued page 112

DIURIS X PALACHILA - A NATURAL HYBRID

David L. Jones

There has been much confusion as to the correct identity of Diuris palachila R.S. Rogers, especially in N.S.W., where it has been confused with forms of D. platichila R.D. FitzG. Despite Rogers assertions that the species is not a hybrid (1, 13) there is little doubt that it is a natural hybrid between D. maculata Sm. and D. pedunculata R. Br. Rogers inability to see this relationship is surprising especially in view of his reputation as an orchidologist. It is perhaps noteworthy that he makes the same observation in the description of Caladenia tutelata R.S. Rogers (6). There are very few people today who would disagree that this is a natural intergeneric hybrid between Glossodia major R. Br. and Caladenia deformis R. Br.

It is certain that Rogers strong statements to the contrary bewildered early orchidologists as to the actual identification of D. palachila. Even in South Australia before Rogers described the species it was known as D. intermedia because of its intermediate characteristics between D. pedunculata and D. maculata. E.E. Pescott was the first to reconcile Rogers description with the hybrid plant in Victoria, although he states that it has often been taken for a yellow form of D. maculata (2). Rogers published no illustration with his type description of the species (1) and this no doubt added to the difficulty of identification. Diuris species are notoriously difficult to identify from descriptions, especially a hybrid form. The publication of a photograph of the species in Rogers book in 1911 must have helped considerably (3).

As Rogers assertions are strong that the species is not a hybrid and as doubt is raised in a recent N.S.W. publication that the hybrid and Rogers' plant may not be one and the same (8).

I have checked its identity. I find that the South Australian species is identical with the forms we call D. palachila in Victoria and which in fact are natural hybrids.

My conclusion is based on the following points -

1. After making due allowances for variation the type description fits the Victorian plants on all the major points.
2. The species was illustrated in at least three South Australian publications during Rogers lifetime (3, 13, 14). Two of these were in fact published in conjunction with articles by Rogers. These illustrations all fit in well with Victorian specimens. The best of these is the colour plate by Rosa Fiveash (13).
3. Nicholls exchanged specimens of this species with Rogers and his plates have been published (4). They match up with the plants I know and incidentally illustrate a good range of variation of this hybrid showing how the locality variation of the parents can affect the hybrid.

I have not checked the type since it is situated at Adelaide, but I think the above facts should dispel any doubts as to the identity of the species.

It seems that Williams, in 1957, was the first to raise the question of hybridism in this species on a serious note (5). He studied plants in the Pomonal area near the Grampians and found them to be always associated with the two species mentioned earlier. His observations strongly suggest hybridism. J.H. Willis also notes this apparent relationship (7).

I have closely examined this species at Warrandyte for the last seven seasons and have been able to observe its relationships. There is no doubt in my mind that it is a natural hybrid between D. pedunculata and D. maculata. I have not found it in the absence of its parents but even such an occurrence would mean little since orchid seed is light and capable of dispersion over long distances by wind. The only way of course, to be absolutely sure is to raise seed of deliberately crossed parents.

Where the two species and the hybrid grow together at Warrandyte, a range of confusing forms can be found. This is a typical hybrid swarm and will be dealt with more fully in a later article. Briefly, hybridism occurs not only between the parents but also between the hybrids themselves, and between the hybrids and the parents. The result is confusion in the first degree. Forms approaching D. palachila can be singled out and also apparently D. victoriensis P.R. Messmer (7). Williams observations suggest a similar happening at Pomonal (5).

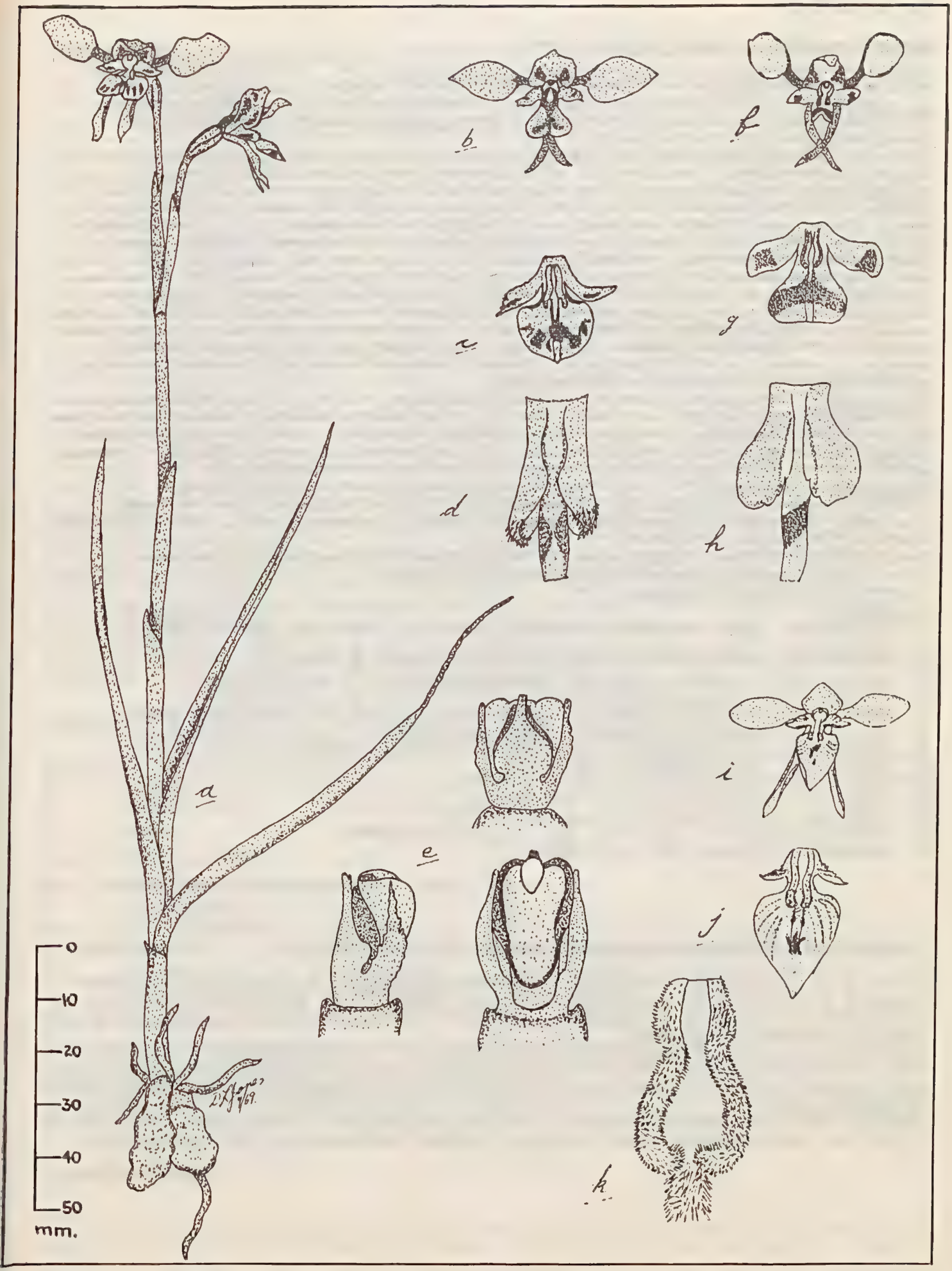
At this stage it should be pointed out that I have seen Diuris palachila at other localities where there was no suggestion of a hybrid swarm. At these places there were simply the two parents and the hybrid D. palachila. It seems that some special conditions are needed for a hybrid swarm to occur. Such areas occur in the Grampians and Warrandyte in Victoria, and the Blue Mountains in N.S.W.

The accompanying plate shows a typical plant of D. palachila from Ringwood, Victoria. A comparison of the lateral lobes of the labellum with D. maculata and D. pedunculata from the same locality will illustrate the relationships. Those of D. palachila are long, as in D. maculata but are pointed, with irregularly toothed upper margins as in D. pedunculata. Similarly the callus of the labellum shows intermediate relationships, the prominent factor being the pubescence on the tip.

continued page 106

DIURIS SP. - KEY TO PLATE

A. Diuris palachila - natural size
B. Diuris palachila - flower from front - N.S.
C. Diuris palachila - labellum from above - 2X N.S.
D. Diuris palachila - callus from labellum - 8X N.S.
E. Diuris palachila - column from front, side and back 8X N.S.
F. Diuris maculata - flower from front - N.S.
G. Diuris maculata - labellum from above - 2X N.S.
H. Diuris maculata - callus from labellum - 8X N.S.
I. Diuris pedunculata - flower from front - N.S.
J. Diuris pedunculata - labellum from above - 2X N.S.
K. Diuris pedunculata - callus from labellum - 8X N.S.


b
f
c
g
d
h
a
e
i
j
0
10
20
30
40
50
mm.
D.L.Jones
1/69.
k

Diuris X palachila - A Natural Hybrid Cont'd.

Rogers statement that the species nearest ally is D. setacea R. Br., from Western Australia is perhaps not surprising in view of his opinion that it was not a hybrid. I am not familiar with D. setacea but if Nicholls plate is any indication (4) then the two are only superficially related.
The following is a comprehensive description of Diuris palachila compiled from collections throughout Victoria over seven years.
A slender, glabrous plant to 40 cm. high, but usually 15 - 20 cm. Leaves 2 - 8, but usually 3 - 5; slender, narrow-linear, sometimes lax, but usually erect and setaceous in the manner of D. pedunculata, channelled; up to 17 cm. long, but usually about 10 cm. Flowers 1 - 4, often nodding, on slender pedicels 3 - 5 cm. long; a clear yellow, variously spotted and blotched with brown. Dorsal sepal about 12 mm. long, ovate, cucullate or occasionally erect. Lateral sepals 12 - 20 mm. long, usually, about 15 mm.; green, channelled with inturned margins; linear to linear-spathulate, spreading, remaining parallel or crossing at the tips. Petals plus claw 15 - 22 mm. long; the lamina oval to elliptic, 10 - 14 mm. long; the claw linear, distinct 5 - 8 mm. long. Labellum 10 - 14 mm. long; lateral lobes 6 - 8 mm. long, spreading, narrow-lanceolate with irregularly toothed upper margins; mid-lobe shovel shaped with a central keel. Callus of 2 narrow raised lines bulging variously and ending in a mass of minute teeth or pubescence; the inner parts sometimes also pubescent. Column 4 mm. high, erect; anther flat, as high as the viscidium, terminating obtusely or with a short point. Column appendages 4 mm. high, narrow-lanceolate, slightly falcate with irregularly toothed margins.
Distribution : The species is found in four Australian States. N.S.W., central western slopes, north western slopes and the north coast. Victoria, widespread in open forest throughout the State but absent from the mallee, sub-alpine regions and east Gippsland. South Australia, widespread through the southern areas particularly in the south east and the hills around Adelaide. Tasmania, apparently rare where known only from a couple of localities in the north and east.
Representative localities : N.S.W., Cudal, Coonabarabran, Martins Creek, Molong.
Victoria, Beechworth, Cravensville, Mansfield, Moe, Croydon, Ringwood, Greensborough, Frankston, Tottenham, Staughton Vale, Gisborne, Kyneton, Creswick, Stawell, Ararat, Macedon, Pomonal, Grampians, St. Arnaud.
South Australia, National Park, Blackwood, Belair, Black Hill, Gandy's Gully, Barossa, Port Victor, Angaston, McLaren Vale, Golden Grove, Robe.
Tasmania, Knocklofty, Punchbowl.

References :

1. Rogers, R.S. Three new species of orchid. Trans. Roy. Soc. S. Aust. 31:209 (1907).
2. Pescott, E.E. Notes on the orchids of Victoria. Vict. Nat. 37:111 (1921).
3. Rogers, R.S. An introduction to the study of S.A. orchids. p. 29 (1911).
4. Nicholls, W.H. Orchids of Australia, complete edition. p. 17, pl. 68 (1969).
5. Williams, W.L. Diuris palachila; species or hybrid? Vict. Nat. 73:141 (1957).
6. Rogers, R.S. Three new species of orchid. Trans. Roy. Soc. S. Austr. 31:211 (1907).
7. Willis, J.H. Handbook to plants in Victoria. 1:361 (1962).
8. McGillivray, D.J. Supplement to the orchids of N.S.W. 163 (1969).
9. Ewart, A.J. Flora of Victoria. 358 (1931).
10. Black, J.M. Flora of S. Austr. ed. 2:239 (1943).
11. Rupp, H.M.R. Orchids of N.S.W. 16 (1943).
12. Firth, M.J. Native Orchids of Tasmania. 80 (1965).
13. Fiveash in Rogers. S. Austr. Nat. 18:t. 3 opp. 66 col. (1937).
14. Goldsack, H. S. Austr. Nat. 22 3:9 (1944).

David L. Jones, 2 Kathleen Close, Bayswater, Vic. 3153.

TERRESTRIAL ORCHID RECORDINGS ON THE SOUTH COAST OF N. S. W.

B. Whitehead

During April 1969, significant numbers of an unusual Prasophyllum were found in three separate localities in areas some miles north and south of Robertson N.S.W. Since extensive bushfires had occurred the previous year, it was considered possible that the fires may have had something to do with the appearance of the orchid.
Investigation this year, during April has shown that no fewer flowering plants have occurred in the same localities this season. This enabled the collection of preserved specimens to be made, and after examination these have been identified for the author as Prasophyllum bowdenae. The species is strange to observe, because, apart from the unusual internal structure of the flower, the plants appear to open their flowers infrequently. When they do open (and it is by no means certain that all flowers on a spike reach this stage), the pinkish labellum protrudes between the lateral sepals,

continued page 111

THELYMITRA CARNEA R. BR. AND THELYMITRA RUBRA FITZG.

P.H.T. Uhlherr

The following comments are prompted by C.K. Ingram's article "The Pink Thelymitras in New South Wales". It is stated in this article that the two species in question "are not easily separated - at least in New South Wales" and that "serious consideration may have to be given to regarding the two species as forms of a single species". I have found that, in Victoria, the two species are easily separated and are always quite distinct, even where they occur and flower together. Further, T. carnea shows only very little variation between N.S.W. and Victorian stations known to me. However, I have never seen T. rubra from N.S.W. and therefore expect that most of the difficulty must be caused by variation of this species between the two States. It must be added, though, that within Victoria, T. rubra is quite constant in its features, as far as I have seen.

C.K. Ingram further suggests that "the vestigial knob (frontal appendage) of the column of T. rubra may be worthy of consideration"as a reliable guide for identification. I have found this feature to be present on all specimens of T. rubra that I have seen and I agree with Mr. Ingram on this point. My observations on the two species are summarised below.

Table 1 lists the localities and dates of my records of the species.

Table 2 summarises the constant differences between the two species in Victoria. The characteristics listed for T. carnea were also found in N.S.W. specimens. The accompanying figure shows column details, perianth segment tips and leaf cross-sections.

Table 3 lists features which have been given by various authors to aid identification or as parts of detailed descriptions. These features, although frequently observable, are not sufficiently conspicuous or constant to afford a reliable basis for identification. In many cases, overlap occurs between the two species, which could cause confusion. Thus, although T. carnea is usually more slender than T. rubra, this is not always so. Leaf cross-sections are compared in the figure, K, L. Although the leaf of T. carnea may be also terete, it can also be distinctly channelled, and broader than that of some T. rubra specimens. Flower sizes also overlap. Thus the perianth segments of T. carnea are 6 - 9.5 mm. long and 3 - 6 mm. wide, and those of T. rubra are 8 - 10 mm. long and 5 - 7 mm. wide. The apparent size of the flowers also depends on the degree of opening. Although T. rubra opens a little more freely, T. carnea also opens in sunny, humid weather, but not quite as widely as T. rubra. This can give the flowers of T. carnea a considerably smaller appearance. The red band on the column can be an aid to identification, as shown in Table 1. However, the colour of the band is not a reliable guide. Usually T. carnea has a brownish-pink band, while T. rubra has one of bright red. But this is inconstant; I have found only the extent of the band to be constant. The entire column of T. rubra is usually more heavily pigmented than that of T. carnea.

Table 4 lists references to illustrations of the two species which should be easily accessible (unlike FitzGerald's work). However, this list is not exhaustive.

Table 1 Localities near Sydney and Melbourne where the author has recorded Thelymitra carnea R. Br. and Thelymitra rubra FitzG.

State	T. carnea		T. rubra	
N.S.W.	Georges River	9.65, 9.66, 9.69		
	Menai	9.65, 9.66		
	Royal Nat'l Park	9.66		
	Lane Cove Nat'l Park	10.66		
	Kuringai Chase	9.69		
Vic.	Crib Point	10.69	Anglesea	9.68 (adv. bud)
	Dandenongs *	10.67, 10.68	Dandenongs *	10.67, 10.68, 10.69
	Beaconsfield *	10.69	Beaconsfield *	10.67, 10.69
	St. Andrews	10.68	Arthur's Seat	10.67

* Both species occur together and flower simultaneously.

continued page 108

Thelymitra carnea R. Br. and Thelymitra rubra FitzG. Cont'd.

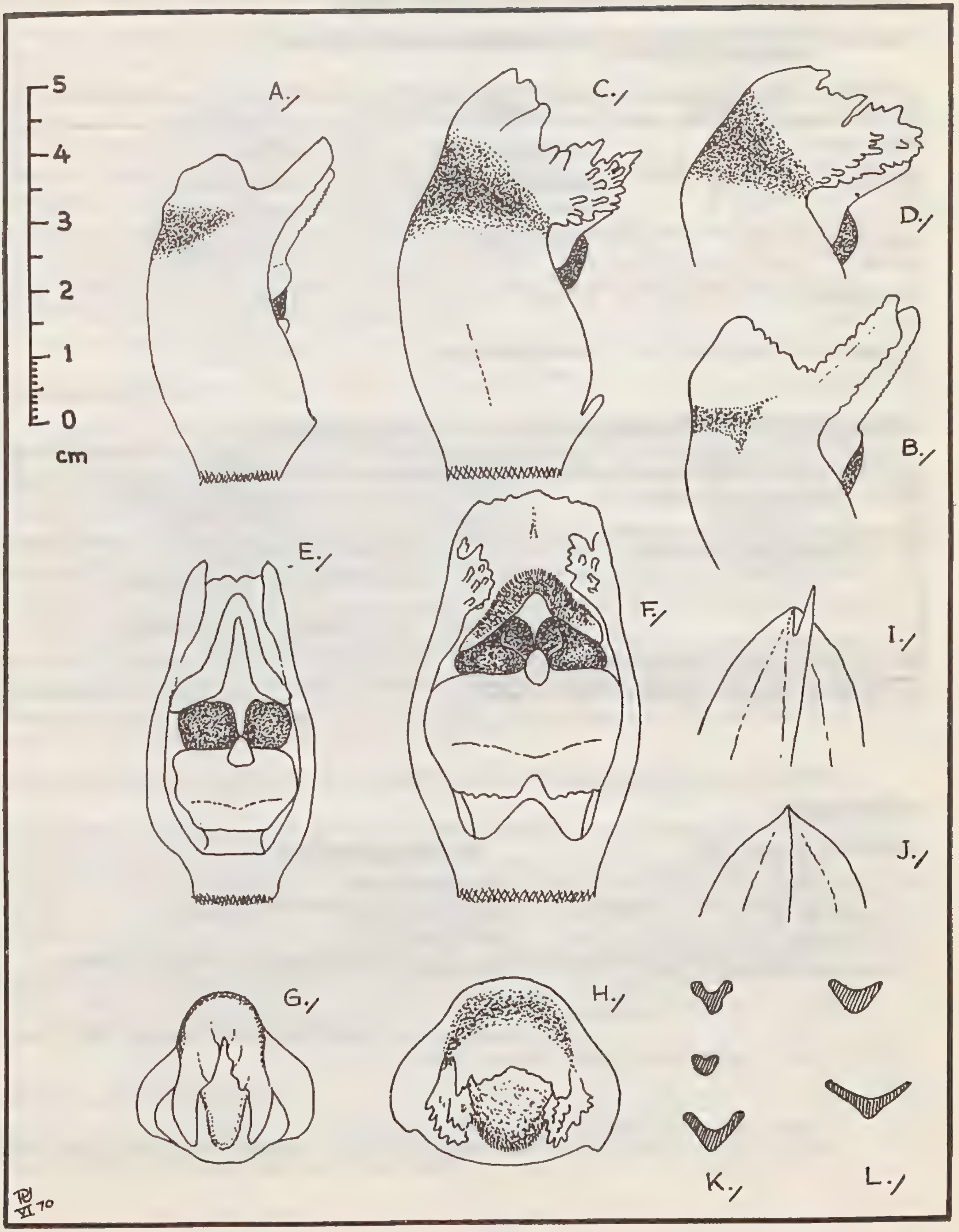
References

1. Blackmore, J.A.P., The Orchadian, 2 (3), 44 (1966).
2. Cochrane, G.R., et al, "Flowers and Plants of Victoria", Reed, Sydney, 1968.
3. Erickson, R., "Orchids of the West", Paterson Brokensha, Perth, 1965.
4. Firth, M.J., "Native Orchids of Tasmania", Published by the Author, Devonport, 1965.
5. Goldsack, H., in Cotton, B.C., (Ed.), "South Australian National Parks and Wild Life Reserves", Govt. Printer, Adelaide, (1964).
6. Gray, C.E., "Victorian Native Orchids", Vol. I, Longmans, Melbourne, (1966).
7. Ingram, C.K., The Orchadian, 3 (7), 82 (1970).
8. Nicholls, W.H., "Orchids of Australia", Nelson, Melbourne, (1969).
9. Rogers, R.S., in Black, J.M., "Flora of South Australia", Parts 1, 2, Govt. Printer, Adelaide, (1960).
10. Rupp, H.M.R., "The Orchids of New South Wales", Govt. Printer, Sydney, (1969).
11. idem, "Guide to the Orchids of New South Wales", Angus and Robertson, Sydney, (1930).
12. Willis, J.H., "A Handbook to Plants in Victoria", Melbourne University Press, Melbourne, (1962).

Table 2 Constant features of Thelymitra carnea R. Br. and Thelymitra rubra FitzG.

Feature		T. carnea	T. rubra
Anther	1	Narrow	Broad
	2	Directed upwards at about 45 degrees	Directed almost horizontally forwards
	3	Quite smooth above	Shortly but densely glandular-hairy above, near the tip
Column side lobes	1	Narrow	Broad
	2	Usually smooth, but may be slightly denticulate	Always covered with finger-like protrusions and irregular
	3	Equal to, or shorter than the anther	Equal to, or longer than the anther
	4	Directed upwards at 45 degrees	Directed horizontally forwards
Column midlobe	1	Crest narrow, cleft or folded	Crest broad
	2	Crest lower than the tips of the side lobes	Crest higher than the tips of the side lobes
	3	Crest usually smooth, but may be slightly irregular	Crest irregularly toothed
	4	Colour band below crest narrow, not reaching the base of the side lobes	Colour band below crest broad, and reaching the front margin of the column below the side lobes
Column base	1	Front basal margin horizontal	Front basal margin in the form of a conspicuous, triangular tooth (vestigial mid lobe)
Stigma	1	Entire at its base	Notched at its base
Perianth segments	1	Tips smooth or apiculate	Tips mucronate (as in the lateral sepals of many Prasophyllum species described as "bidentate")

continued page 110.


5
4
3
2
1
0
cm
A./
C./
D./
B./
E./
F./
I./
J./
G./
H./
K./
L./
VI 70

Thelymitra carnea R. Br. and Thelymitra rubra FitzG. Cont'd.

Table 3 Inconstant differences between Thelymitra carnea R. Br. and Thelymitra rubra FitzG.

Feature	Reference	T. carnea	T. rubra
Plant habit	2, 3, 4	Extremely slender	Slender
Flowers	1, 2, 3	Hardly opens	Opens freely
	5, 6, 8	Small, few	Larger, several
Leaf cross section	1, 6	Almost terete	More definitely channelled
Colour band on column	6	-	Red
Perianth colour	4, 5, 6	Flesh pink to pale red	Pink to red

Table 4 Illustrations of Thelymitra carnea R. Br. and Thelymitra rubra FitzG.

T. carnea	T. rubra
Ref 3: line diagram of column from front	Ref 1: line diagram of vestigial lobe on column
Ref 11: monochrome photograph of flowers	Ref 2: colour photograph
	Ref 5: line diagram of plant and column side
	Ref 6: monochrome photograph of flower
Ref 4: line diagram of column from the side	
Ref 8: colour diagram of plant and column details.	

KEY TO PLATE

Thelymitra carnea R. Br.

A. Column side)
B. Variation of side lobe) X10
E. Column front)
G. Column top)
J. Tip of perianth segments (except labellum)
K. Leaf cross sections X3

Thelymitra rubra FitzG.

C. Column side)
D. Variation of side lobe) X10
F. Column front)
H. Column top)
I. Tip of perianth segments (except labellum)
L. Leaf cross sections X3

P. H. T. Uhlherr, 8 Baringa Street, Mount Waverley, VIC. 3149.

Terrestrial Orchid Recordings On The South Coast of N.S.W. Cont'd.

vertically or obliquely reflexed. To complete the picture, flowers which have passed maturity closely resemble the flower in its fresh state, so that careful examination must be made if one wishes to see fresh flowers.

In the late Spring of 1969, the range of Pterostylis ceriflora was extended by the finding of a flowering plant of the species among plants of Pterostylis mutica at Nowra. As time was short, further exploration was not possible but it is considered fairly certain that further specimens could be found in the same type of bushland in the area.

Until this discovery, the plant was confined to its type locality south of Dapto.

In the same area south of Dapto, a colony of Pterostylis truncata is growing. Although a colony of Pterostylis rosettes was known to exist in this small, dry, bushland area, the exact species was not known until the colony was kept under close observation in 1969.

Further west, and at a much higher altitude (2,000'), Caldenia dimorpha has been found in some quantity, at East Kangaloon. The existence of this relatively large colony may account for the occasional appearance of the species as isolated specimens in areas further south and in a different type of habitat. The greater occurrence of the species near East Kangaloon is in open Eucalyptus forest with tussocky grassland, very similar in general appearance to areas where I have seen the species growing around Bathurst N.S.W.

B. Whitehead, P.O. Box 118, Dapto N.S.W. 2530.

RECENT RECORDINGS

M.J. Corrigan.

On a recent trip to southern Queensland the writer was shown a very large clump of Bulbophyllum minutissimum growing on a Bottle Tree (Brachychiton rupestre), near Toowoomba. This rare orchid has also been observed growing on coarse sandstone boulders and on the limbs of Hoop Pine (Araucaria cunninghamiana) on Tambourine Mountain. In N.S.W. the species has been seen growing on very large Ficus sp. at Kiama and near Maitland. No doubt the species is widely distributed and has avoided detection due to its minute size.

A rare albino form of Sarcochilus ceciliae was discovered by the writer some ten years ago on Tambourine Mountain. This form was seen recently at Toowoomba and I am informed by the discoverer, Dud Walters, that the albino form is relatively common in the area. Readers should not confuse pale forms of the species with the true albino which is completely devoid of pink colouration. In fact it can be easily detected when not in flower by the leaves which are completely pale green, and lack the brown-red markings of the pink species.

A sad feature of the discovery of Bulbophyllum minutissimum near Toowoomba, was that another, less conservation minded collector had visited the tree. A very large piece of the bark which had been encrusted with the orchid (tattered remnants surrounded the gap) had been hacked out, with the result that the pith-like core of the tree had been exposed. This core was in an advanced state of decomposition and it was obvious that the very large tree was doomed. A sad fate for the orchid and the tree (the only one of the species seen in the area).

A RECENT OBSERVATION OF THE POLLINATION OF CRYPTOSTYLIS ERECTA BY A WASP

D.R. Leonard

The pollination of Cryptostylis sp. by the male ichneumon wasp is a well known phenonenon. (Rupp "Orchids of N.S.W., p.77 and references therein).

Two things make my recent observation interesting. Firstly, the plant (Cryptostylis erecta) was in a pot and growing in Dover Heights, Sydney, about 25 miles from Kenthurst, where it was collected. To my knowledge there are no other plants of this species in the Dover Heights area. Secondly, two observations were made in less than 10 minutes. The first wasp was captured and taken inside. On returning for another look a second wasp was seen in position in the flower.

Dr. F. MacDonald, Dept. of Agriculture, Sydney University, kindly identified the wasp as Lissopimpla semipunctata - in agreement with the species cited by Rupp. He suggested that the attraction was probably a chemical scent rather than the shape of the flower.

The fact that the same wasp also pollinates other species of Cryptostylis, which differ in shape to a fair degree, is in agreement with this.

D.R. Leonard, 89 Hardy Street, Dover Heights, N.S.W. 2030.

A.N.O.S. - VICTORIAN GROUP

This very active group meets on the first Friday of each month, at 8.00 p.m. at the National Herbarium, Royal Botanic Gardens. Members should contact the Secretary, David L. Jones, 2 Kathleen Close, Bayswater for further information.

Orchids of Australia. Cont'd.

There have been many theories put forward over the years as to why this romantic association has been so. Most of these have revolved around the unusual beauty of such plants and their supposed difficulty of culture in those now almost forgotten days of the past, with the attendant costliness of purchase of even a single bloom. It was probably this latter that persuaded the swains of that age to purchase such a bloom - they could never afford more - to demonstrate to their partners on a particular occasion their love and affection for them. I also understand that such a tribute was usually received in the spirit in which it was given. All of this romanticism of the past applied to orchids which were introductions from tropical and sub-tropical countries - exotic plants.

As might be expected, many publications in colour were produced overseas during that era, illustrating the beauty of these plants - these were also equally expensive.

Coming now specifically to Australia, the position is somewhat different, but not entirely. The majority of our Australian orchids have not the external glamour of these spectacular exotics, being generally small in size and form, using the earlier analogy perhaps they are more suited for the mini-dress of today. However, they still have that typical orchid appeal that gets so many people interested in them.

This interest in Australian Orchids really commenced with the arrival of Sir Joseph Banks in Australia on the occasion of Cook's first voyage to this country in 1770, and it is of interest in passing to note that the launching of this new book almost exactly coincides with the 200th. anniversary of that very important event. While Sir Joseph Banks was a professional botanist, it is worth remembering that, since that date, much of the botanical discoveries that have been made in this country, have been made by amateurs, men working on botanical problems because they loved the science of botany with its implied outdoor way of life. This generalisation has been particularly true of orchids, many of these amateurs coming from Field Naturalist's Clubs and similar bodies of nature lovers all over Australia.

One of the first published works on Australian orchids came from Robert Brown (1773-1858), the botanist who accompanied Matthew Flinders, in his "Prodromus Florae Novae Hollandiae", published in 1810. This was followed shortly after by publications from that grand old man of Australian botany, Baron von Mueller. However, it was from about this time that four famous orchid workers (all amateurs) operated. They were Robert FitzGerald (1830-1892) of New South Wales, Dr. R.S. Rogers (1862-1942) of South Australia, Rev. H.M.R. Rupp (1872-1956) of New South Wales, and our own Victorian orchidologist, William Henry Nicholls (1885-1951), whose brilliant and painstaking work we are honouring today. We are priviledged to have two of Mr. Nicholls' sons and one of his daughters with us today to celebrate this occasion.

The first three of these four botanists all published volumes dealing with their work on orchids - in fact, FitzGerald's "Orchids of Australia", which came out in twelve parts between the years 1875 and 1894, is now a very valuable and rare item of Australiana. The other two published less pretentious, but equally important volumes on the orchids of their own States.

Our own William Henry Nicholls was born in Ballarat, Victoria, on the 23rd. July, 1885. He received his early education (primary standard only) in that city, his father being a school teacher there. Very early in life, he taught himself drawing and painting, two subjects that were to stand him in very great stead in later life. A little later, he studied Latin to equip himself for more advanced descriptions. While working at a trade, he spent his weekends and holidays walking or cycling throughout Victoria in pursuit of his two main hobbies, photography and orchids. This took him to many of the remote parts of Victoria, and he was very proud to be able to boast that he had been able to collect personally all but about six of the one hundred and sixty species of Victorian orchids that were known at that time.

However, with the coming of the depression years, Mr. Nicholls' business - (book binding) suffered the fate of so many small businesses at that time, and he was obliged to seek another occupation. This he finally did with the Footscray City Council Parks and Gardens Department, being their propagator and landscape artist for a number of years.

With this new, or should we say closely allied baby on the horizon, it would have been forgiven if his orchid studies had suffered. They did not, and with the approval of that Council and with the help from the Miss Gibson Trust of the Botanic Gardens, he was able to travel widely into Western Australia, where he was able personally to fill up those gaps that were in his collections and his drawings. These visits took place in 1946 and 1948, at the time when travel was difficult, with strict petrol rationing.

It was one of his wishes that he should be able to visit the Blue Mountains in New South Wales, where many new orchids were being found and also Queensland where interesting epiphytes were being located, but illness and finally death robbed him ofthis opportunity. Following his visit to Western Australia in 1946, he donated the whole of his pressed orchid collection, more than 5,000 specimens, to the National Herbarium in Victoria, where it will always remain as a memorial to his great industry and talent.

Although it was one of his dearest wishes to see a start made with the publication of his paintings, accompanied by accurate test and field notes, such did not prove to be the case.

continued Vol. 3. No. 10.

NS

THE ORCHADIAN

SEPTEMBER, 1970.

Page 113.
Vol. No. 10.

PRICE: 30 cents

Published by The Australasian Native Orchid Society

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
26 OCT 1972

Council

Patron: Sir John Hall Best
President: R.G. Napier
Hon. Secretary: H. Jay
Treasurer: E. Marygold
Records Sec.: D. Dawson
Minute Sec.: M. Spence
Vice Presidents: L. Bradford
J. Davies
Editor: M.J. Corrigan
Asst. Editor: F. Mc Kinney
Immediate Past President: Eric Gordon

REGISTERED FOR POSTING AS A PERIODICAL - CATEGORY B.

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

1970 - 1971 COUNCIL.

Members are advised that as there were only sufficient nominations to fill vacancies on Council, there was no need to hold an election. We welcome to our Society's Council two new members, Jack Davies, long a stalwart of the Society, and Fred Mc Kinney who has just been elected the President of Sydney Group. Congratulations to both of them.

MEMBERSHIP RENEWAL.

Members are reminded that subscriptions to The Society were due on the 1st. July. Assist your Council to plan ahead by renewing your subscription promptly! Ordinary membership is $2.50 per annum.

DONATIONS TO A.N.O.S.

From time to time your Society receives donations from members. We would like to acknowledge a recent donation of $17.50 "from the west".

LOOKING FOR XMAS PRESENTS ?

If you are looking for Xmas presents for family or friends, or perhaps, a present for yourself, we have listed below the titles of recently published books on Australian native orchids which may be of interest.
"Australasian Sarcanthinae" - by A.W. Dockrill. A complete review of the subtribe in Australia. From your Society at $4.50.
"Australian Indigenous Orchids" - by A.W. Dockrill. A comprehensive record of the epiphytes and tropical terrestrial species. $18.00 from your book shop.
"A Guide To Native Australian Orchids" - by R. Bedford. A delightfully illustrated book on Australasian epiphytic orchids in easy to understand language. $8.50 from your book shop.
"The Orchids of New South Wales" - by H.M.R. Rupp. A facsimile reproduction of the original 1943 edition of this famous work, with a supplement by D.J. McGillivray and published in 1969. The supplement contains all changes in nomenclature since the publication of the original work. $5.00 from the N.S.W. Government Offices, 49 Market St., Sydney.
"Orchids of Australia" - by W.H. Nicholls. A complete edition of the drawings of Nicholls and revised text and nomenclature by D.L Jones and T.B. Muir. Published by Nelson, this work must rank as the greatest work after FitzGerald. Available at $30 per copy from your book shop.
"Native Orchids of Tasmania" - by M.J. Firth. A comprehensive review of the epiphytic and terrestrial orchids of Tasmania. From your book shop at approx. $3.25 each.

----
o

THRIXSPERMUM AMPLEXICAULE (Bl.) Reichb.f. A RECORDING FOR THE TERRITORY OF PAPUA AND NEW GUINEA.

N.H.S. Howcroft

This plant was first observed by the author as a herbarium specimen at the Bulolo Forestry School. Live material from two different areas in the Morobe District was examined later, and identified by the author as Thrixspermum amplexicaule (Bl.) Reichb.f., using Holttum's "Flora of Malaya" revised third edition. The more recent "Encyclopaedia of Cultivated Orchids" by Alex D. Hawkes was also referred to. Both these books do not record this orchid for New Guinea.

Apparently the existence of this orchid is known to a few of the prominent native orchid collectors in Lae.

The first object of this paper is to record the New Guinea mainland as a further extension to the present distribution recorded in the above mentioned books. The second objective of this paper is to present a description of the New Guinea Thrixspermum amplexicaule (Bl.) Reichb.f., and a brief description of the plants environment and cultivation in the Bulolo area.

Thrixspermum amplexicaule (Bl.) Reichb.f., Xenorch. 2:121. 1867. J.J. Sm. Fl. Buit. 6:573, f 430 - Dendrocolla amplexicaule Bl. Bijdi. 288. 1825.- Sarcochilus lilacinus Griff., Notul. 3:334. 1851. 1c. Pl. Asiat. 3:t 320 - Thrixspermum lilacinum Reichb.f., Xen. Orch. 2:121. 1867. Ridl. Flora 4:184 (as quoted by Holttum revised third edition Flora of Malaya 602-604); Aerides amplexicaulis Lindl., Orsidice lilacina Reichb.f., Sarcochilus amplexicaulis Reichb.f., (as quoted in Alex D. Hawkes Encyclopaedia of Culitvated Orchids 463).

Stems more than 150.0 cm. long, 3 - 4 mm. thick, erect or clambering, light to yellow-green, often red or purple spots on leaves and their sheaths; roots long, smooth, thin and greyish-white with purple-brown growing tips; leaves up to 5.0 cm. long, 3.0 cm. wide, cordate, base broad and clasping stem, tapering to a blunt apex, equally or unequally bilobed, sheaths shorter than internodes; internodes up to 5.0 cm. long; inflorescence slender and long, scape to 25.0 cm. or more, rachis elongating up to 12.0 cm. or more, having prominent bracts 0.5 - 0.7 cm. long, with sharp or blunted points, laterally compressed, alternating; flowers white to lilac or bicoloured; wide opening, 2.5 cm. to 4.0 cm. wide, sepals 1.7 - 2.0 cm. long, 0.8 - 1.0 cm. wide; dorsal sepal ovate, lateral sepals oblong-ovate slightly decurrent on the column foot tips and portion of sepal and petal margins rounded inward; petals usually shorter than sepals; 1.3 - 1.5 cm. long, 0.6 - 0.8 cm. wide; the labellum saccate. trilobate, with a small yellow callus on the anterior wall and a bright orange hairy patch at the base of the sac on the anterior wall; sac prominent, more or less 0.8 cm. deep, lateral lobes small, 0.2 - 0.5 cm. long, more or less blunt pointed and curved forward, mid lobe fleshy, blunt or more or less pointed, 0.4 - 0.7 cm. long, white with base flushed with lilac and sometimes spotted with blue. Column short, 0.2 cm. long, without anther, by 0.2 cm. wide across stigmatic section, column foot 0.6 cm. long, approximately 0.2 cm. wide, the wall of which is sometimes flushed with pale lavender. Stigma deeply set into column. Anther ± 0.18 cm. wide by ± 0.15 cm. high by 0.1 cm. deep. Pollinia 4, united into 2 pairs attached to a broad stipe with a viscid semi-crescent shaped disc which has a small almost blunt point at the height of the curve.

Distribution. Malaya, Sumatra to Philippines and to the Territory of Papua and New Guinea.

Observation. This orchid apparently enjoys sunny positions but can tolerate shady conditions as well.

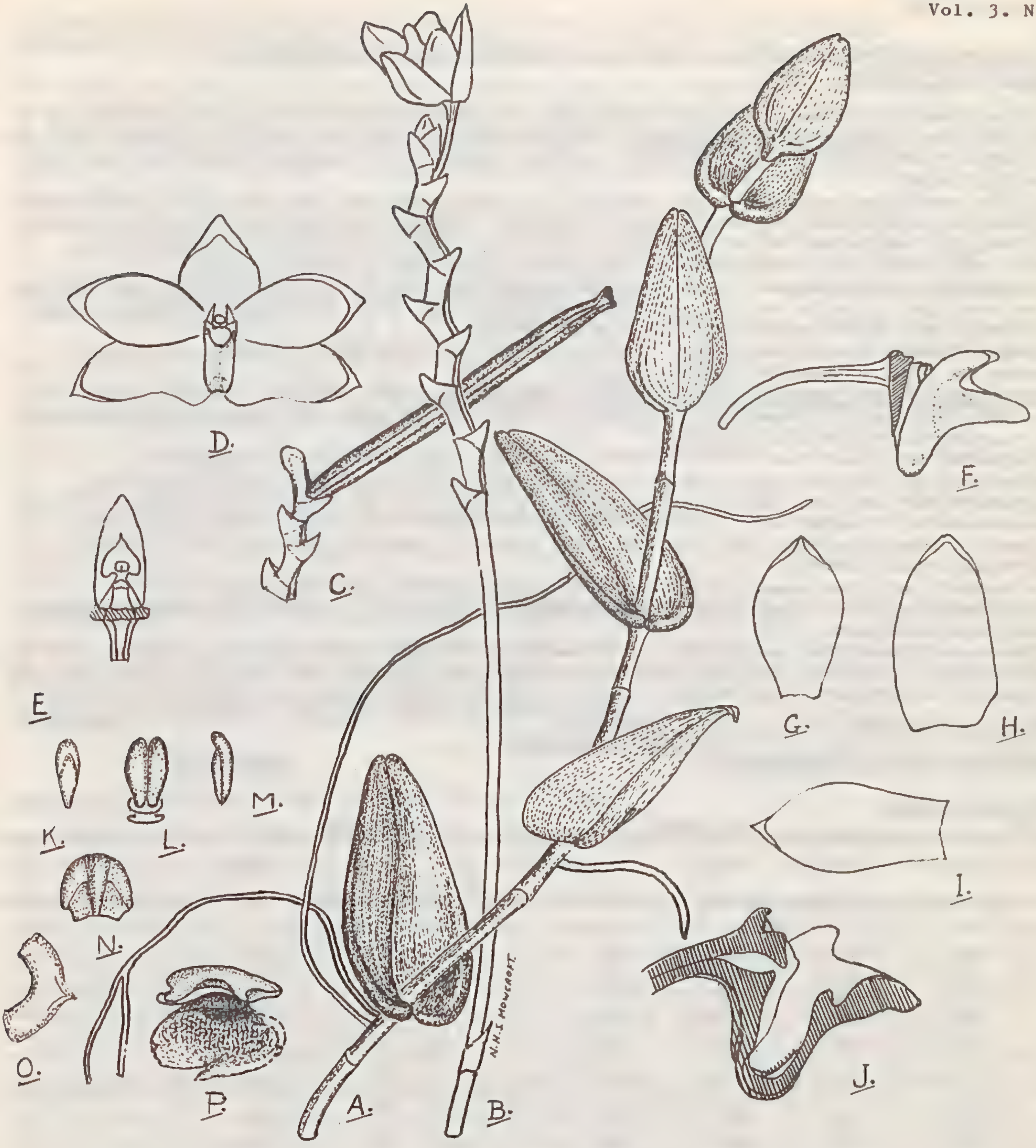
The Oomsis and Wariar provenances are growing in full sunlight while the Bulolo provenance grows in semi shaded conditions where it receives sunlight on most sunny days from 10.00 a.m. to 2.00 p.m., as the area is surrounded by young plantations of tall Hoop Pine (Araucaria cunninghamii) approximately 12 years old. Conditions must have been sunnier and hotter for these orchids in the early days of the surrounding plantations.

Flowering times. Visits to this area have been spread throughout the year 1969, to observe flowering. On each occasion, several rachis were bearing open or dying flowers.

The flowers observed on plants grown in the author's collection lasted one day, with the exception of one flower which bloomed during a wet period and lasted two days. Flowers are borne in succession and the buds open early in the morning; on hot days the flowers close around 2.00 p.m.

Observations. This orchid has been found in only one area of Bulolo. It is found outside Oomsis and reported to be found along the banks of the Wariar River. In all cases the orchid is found growing in swampy locations.

continued page 116



Thrixspermum amplexicaule (Bl.) Rchb.

THRIXSPERMUM AMPLEXICAULE - KEY TO PLATE

A. Plant-section of,.......to scale nat. size.
B. Inflorescence and stalk section to scale nat. size.
C. Green fruit to scale natural size.
D. Front view of flower. To scale X1 2/3 (specimen No.1).
E. Dorsal view of labellum to scale X2 (specimen No.2).
F. Lateral view of labellum to scale X2 (specimen No.1).
G. Petal to scale X2 (specimen No.2).
H. Lateral sepal to scale X2 (specimen No.2).
I. Dorsal sepal to scale X2 (specimen No.2).
J. Cross section of column & labellum to scale X3 (specimen No.3).
K. 1 pair of pollinia, dorsal view to scale X8.
L. Pollinia X8.
M. 1 pair of pollinia, lateral view.
N. Anther, from front X8.
O. Viscid disc.
P. Viscid disc & stipe without pollinia.

Thrixspermum amplexicaule (Bl.) Reichb.f. A Recording For The Territory of Papua and New Guinea. cont.

The Bulolo species grows in a swamp surrounded by ridges covered with a young plantation of tall Hoop Pine (*Araucaria cunninghamii*). Strong sunlight does not seem to penetrate the tree tops until 10.00 a.m. onwards. Afternoon shadows commence to lengthen across the area just after 2.00 p.m.

The light conditions have not always been as it is now. When the area was first reafforested the area would have been exposed to full sunlight. In years to come, as the trees increased their height, the colony of orchids may receive less light. It would be interesting to observe the effect this might have on the overall behaviour of these orchids.

At present the plants appear to be growing in positions where they receive the earliest and latest sunlight; this is in the northern half of the bog, with the heaviest concentration situated in the middle where the plants grow upright.

The Oomsis area's plants were found growing in full sunlight and the Wariar River were reported to also be exposed to full sunlight.

Temperatures of environments. *Thrixspermum amplexicaule* (Bl.) Reichb.f. here, appears to have been found only in swamps or bog areas so far. The Malayan and Indonesian provenances are reported to be found in swamps.

Some observations have been made to obtain an idea of the differences between the temperatures of the swamp area and the surrounding Hoop Pine forest. Two thermograph instruments were set up, one in each area, for a period of two weeks. These showed that bog temperatures were higher than the Hoop Pine forest temperatures. The swamp temperature readings fluctuated widely, and the Hoop Pine forest's temperatures did not fluctuate a great deal (refer table).

Unfortunately only the swamp environment's relative humidity was measured with a hydrothermograph in the last week of measurements, therefore, a comparison cannot be made between the two areas.

This measure showed that constantly, over the three or four nights the R.H. reached 100% and remained high during the next day. Minimum daytime R.H. reached for the entire week was 35%.

As a matter of interest, the orchids found in the Hoop Pine forest were noted, these were *Calanthe engleriana* Kranzl. and *C. triplicata* (Willem. Ames Philip), a species of *Nervilia* and a plant at present called *Eulophia emarginata*.

Temperature Table - In Farenheit. **August 1969.**

Time of reading.

	9 a.m.		12 noon.		3 p.m.	
Day	Bog	Hoop	Bog	Hoop	Bog	Hoop
M	-	-	-	-	-	-
T	74	72	86	79	82	79
W	70	71	74	74	82	75
T	70	72	76	75	88	75
F	68	69	74	72	76	73
S	68	70	80	73	92	77
S	-	-	-	-	-	-
M	75	-	89	-	83	-
T	70	74	88	80	90	80
W	65	71	88	80	83	76
T	70	71	84	78	86	80
F	71	71	82	76	88	83
S	75	70	73	72	74	72
S	75	-	86	-	-	-

The maximum and minimum range over the two weeks for these areas are as follows:
Bog - 93°F and 61°F. Hoop Pine forest - 84°F and 64°F.

Rainfall: No rainfall readings were taken for these areas, however, as mentioned already, rain was known to have fallen in the last week of measure for the temperatures. Oficially

continued page 117.

Thrixspermum amplexicaule (Bl.) Reichb.f. A Recording For The Territory of Papua and New Guinea. cont.

the Bulolo rainfall is 60" per annum. Rainfall here is variable from area to area in this large valley and to apply this figure to the locality where these orchids are found would be incorrect, as it has been estimated that the mountain perimeters of the Bulolo Valley receive more than 100" per annum (altitude 4,000 - 5,000 feet). The Thrixspermum colony is located close to the 3,000' altitude mark where the rainfall appears to be higher than in the valley proper.

Under cultivation: At present this orchid appears to be thriving well, both in dense shade and in open sunlight with terete Vandas. In both positions the conditions are fairly moist but the shaded plant is in a cool spot where the micro climate has been arranged to suit mid montane type ground orchids such as Phaius flavus (Bl.) Lindl., Calanthe chrysantha Schltr., Calanthe engleriana Kranzl. and Malaxis species.

To date the only obvious effect on the shaded specimens seems to be a slight increase in size of the leaf and a decrease in red and purple spots on the leaves. The specimen in the open has not changed in any of its features.

Watering is done daily with a twice weekly application of Aquasol.

Notes on the illustrations. The flower in fig. D illustrates the general shape of the Bulolo specimen, however, it should be kept in mind that size and shape were fairly variable and although for instance the petals of fig. D appear as long as the sepals there were in fact, types with smaller petasl.

The seed capsule illustrated is a green one and does not represent a fully developed one; as these were scarce and no ripe ones available the author has no idea of the size of a fully developed specimen.

Literature used. Flora of Malaya, Holttum. Encyclopaedia of Cultivated Orchids, Hawkes, A.D. Flora of Java, Vol. 3., Backer, C.A.

Acknowledgements. The author wishes to thank the following people for their invaluable assistance: Mr. B. Gray, Forest Entomology, Bulolo, for thermographs. Mr. Andy Gilleson, Forestry School, for the loan of equipment. Mr. Heinar Streiman, Forestry School, for his kind assistance in locating the live specimens. Mr. Leon Clifford, Forestry School, for information and specimens of the Oomsis plants and Mr. Ian Ward, Placer Prospecting, for information and plants from the Wariar River regions.

N.H.S. Howcroft. Care of Forestry Dept. Bulolo. T.P.N.G.

Orchids of Australia. cont. from p.112, Vol. 3. No. 9.

His untimely death resulting in 1951, just as negotiations were being completed to publish his work in parts. This very costly work was commenced, but only four parts ever came off the press, the first in 1951 and the last appearing in 1954.

Fortunately, and I say fortunately in its widest meaning, ways and means have now been found to publish this monumental work in one complete volume, with colour illustrations and we see here today the completed work. The plates, 476 all told, are as they were painted by Mr. Nicholls himself, while the text, 124 pages originally prepared by Mr. Nicholls, has been edited and brought up to date by two young orchidologists, Bruce Muir of the National Herbarium in Melbourne and David Jones of the Victorian Department of Agriculture.

The question may well be asked - what is the purpose of publishing such a lavish publication ? If we carefully analyse the position, I feel we will soon change our first thoughts on the subject. This book is not just a fantasy from a person who happened to be interested, almost to the state of fanaticism, in a particular group of plants, it is a perfect example of the accurate recording in colour and in words, of what an observant, self trained man saw during his lifetime of association with nature. It is truth - original truth - in its finest definition. Where else in these modern days where all sorts and kinds of publication appear almost daily, could we hope to find such important fundamental information gleaned from nature itself. If that was its sole value, then it would have been well worth while. But to my mind, it has a more important lesson to teach us - the lesson of conservation. This book records the findings of an observant naturalist, commenced at least 50 years ago. It records in colour form for all time, some specimens of plants that are now probably extinct, it records others whose present distribution has been pushed back right to the fringes of settlement, and it records others that were once common, probably where we are now standing today, but which we may have to travel many miles to locate. Surely from this book, we will learn something of what we, a so-called civilised race, have been doing

Continued p. 118.

Orchids of Australia. cont.

to many sections of our native flora and fauna. If we are wise, we will stop and learn!

Thomas Nelson (Australasia) through its Managing Director (Mr. David Rosenberg) full credit must be given for firstly seeing the importance of producing this valuable work with all its implications, and secondly for the excellence of the workmanship that has gone into the reproduction of the plates and the assembling of the book.

In now launching this new work "The Complete Edition of W.H. Nicholls' Orchids of Australia" I offer my congratulations to the publishers, at the same time wishing the publication itself all the success it really deserves.

R.T.M. Pescott.

A NEW PTEROSTYLIS IN NORTH QUEENSLAND.

B. Gray.

With the finding in July of *Pterostylis gibbosa* ssp. *mitchellii* (Lindl.) Blackmore et Clemesha, the number of *Pterostylis* species found in north Queensland is raised to eight. This also means that the "Rufous Group" is represented here for the first time.

The other recorded species are *Pterostylis grandiflora*, *P. parviflora*, *P. ophioglossa* var. *collina*, *P. depauperata* (endemic to north Queensland), *P. acuminata* var. *acuminata*, *P. baptistii* and *P. hildae*.

The finding of this orchid came as quite a surprise, some 500 miles north of its most northerly previous record. Besides occurring in N.S.W. its Queensland range extended to almost as far north as Rockhampton. So this recording means quite an appreciable extension to the known range of this orchid.

The colony extended over an area of half an acre and probably contains 30 or 40 plants. This area could be much more extensive as the adjoining country is quite similar and an extended search will probably prove this to be so. Plants varied from dwarfs a few centimeters high, with only two or three leaves and a single flower, to specimens up to 25 cm. high. These plants had up to 8 leaves and 5 flowers at various stages of development. Many others had their flower spikes eaten off by grazing cattle or kangaroos.

The area is in the headwaters of the Herbert River, at an elevation of 1,700 feet and some 30 miles from the coast. Average rainfall is from 20 to 30 inches. The plants were growing on a stony slope facing east, at the top of a very steep escarpment and among tussocks of grass under only very light timber.

Corybas aconitiflorus, *Pterostylis ophioglossa* var. *collina* and *Caladenia carnea* also occurred within the limits of the colony and were flowering during our visit. This and the other orchids observed, seem to be safe at least in the site visited. The area is quite remote and the colony has apparently existed,along with the livestock, for the last century, at least.

MORE "UNIQUE" PERFUMES IN PRASOPHYLLUM.

Don F. Blaxell.

As an addition to the article by David Jones on the perfume of *Prasophyllum fimbriatum* (Orchadian 3, 9:103 (1970)), the following observations may be of interest. In late February this year (1970), Miss Isobel Bowden brought to the National Herbarium, some fresh plants of several species of "pygmy prasophylls" collected near her home at Woodford in the Blue Mountains. While examining them I noted quite a strong "lemon essence" odour associated with some of the plants. I separated the plants of the several species and smelt each group. The following is a very subjective and unscientific account, but it may shed some light on the question of pollination vectors of these small orchids.

Prasophyllum aureoviride Rupp - no noticeable odour (several plants).
Prasophyllum densum R.D. FitzG. - no noticeable odour (only one plant, so concentration of any odour much less than the other species).
Prasophyllum beaugleholei W.H. Nicholls - no noticeable odour (several plants).
Prasophyllum anomalum Rupp - faint "lemon" odour (several plants).
Prasophyllum archeri Hook.f. - odour of "sour milk" (several plants).
Prasophyllum morrisii W.H. Nicholls - very strong "lemon" odour (several plants).
Prasophyllum morrisii var. *intermedium* Rupp - weak "lemon" odour mixed with an "anty" odour (several plants).

Even though perception and recognition of odours is very variable in humans, I suggest that readers who collect native terrestrial orchids for herbarium purposes (their own or others') or for study purposes, including drawing, should record any odour that they perceive in the

Continued p. 119.

More "Unique" Perfumes In Prasophyllum. cont.

fresh flowers. Absence of odour should also be recorded.

Don F. Blaxell, Botanist, National Herbarium, Royal Botanic Gardens, Sydney, 2000.

A SPECIAL ERQUEST TO MEMBERS.

Don Blaxell, National Herbarium, Royal Botanic Gardens, Sydney, is working on the orchid genera Caleana, Spiculaea and Drakaea. He would greatly appreciate fresh material, pressed specimens, or material in liquid preservative of any species of these genera. Large numbers of plants are not required, one or two from each population is sufficient. Please pack the specimens carefully and mail or deliver them to the above address.

A POLLINATOR FOR DENDROBIUM SPECIOSUM.

R. Smythe.

For a change something ordinary has happened with my observations of orchid pollinators. Recently I have reported the pollination of Bulbophyllum baileyi by the fruit fly and Dendrobium smilliae by a bird.

My latest observation was to observe an ordinary native bee (Apidae trigona) emerging from a flower of Dendrobium speciosum carrying two large pollinia on its thorax. The pollinia was so far forward that it was touching the insects head. This disturbed the insect so much that he was completely preoccupied trying to arch this weight off his back that I had time to go into the house and come back with a glass and catch him.

I kept the insect for a couple of days in the glass until I could get to the University to have his identity checked. The insect had not removed the pollinia after 24 hours of prancing around.

At the time of the observation the flowers were heavily scented and numerous visitors were observed. These visitors to the flower were probably other species of native bee, grey and black barred and smaller than the native bee mentioned above. They were obviously too small to pollinate the flower. The plant was a large growing form from Julatten in North Queensland, with large sprays of light cream flowers having a very heavy perfume.

R. Smythe, James Cook University of North Queensland.

SOME THOUGHTS ON THE TAXONOMY OF THE GENUS DIURIS.

David L. Jones.

The taxonomy of the genus Diuris is undoubtedly the most confused in Australia. Even the present day botanist cannot readily reach agreement over the many species. It is obvious that a competent revision of the whole genus is needed rather than the piecemeal approach that has been used in the past and is still being used now.

Rupp, Nicholls and Rogers all voiced their concern with the taxonomy of this genus at one stage or another, and incidentally added greatly to the confusion by naming various hybrids and forms.

The confusion in the genus can be traced back to three main sources:

First, there is the usual botanical problem of having much of the type material situated in overseas Herbaria. This, combined with early botanists habit of using the briefest possible description when naming a new species, makes it very difficult to relate their views to the plants we know today.

Second, the various species behave as a typical open pollinated group that is still in the course of evolution. Each species is variable in the extreme, a fact which indicates that genetic segregation is still occurring.

Third, the various forms and species hybridise freely.

The final two factors are the most confusing when faced with a group of plants in the field; and they are related.

The species themselves vary due to genetic segregation still occurring within them. Take as an example Diuris maculata Sm. In Victoria, on the coast, the plants are yellow with dark spots; at Warrandyte they are an orange yellow with brown blotches; in the Grampians they vary from pure yellow through to the Warrandyte form. Add to this colour variation, the variations that occur in other characters such as vigour, length of the lateral sepals and degree of crossing, length and breadth of the lateral lobes of the labellum and length of claw and shape of lamina of the lateral petasl, and you begin to see why we have such

continued page 120.

Some Thoughts On The Taxonomy Of The Genus *Diuris*. cont.

confusion in this genus. It is extremely difficult to define a set of characters which constitute a species.

Some factors such as vigour, flower number and size are probably related to the environment and due allowance should be made for these.

The extreme variation noted using *D. maculata* as an example brings me to one of the main points of this article. The plants themselves vary, so imagine the confusion when natural hybridisation occurs; and it occurs freely. The hybridisation can occur in two ways. First, we get crosses between the forms within the species, e.g. the yellow coastal and the blotched Warrandyte form of *D. maculata*. There is strong evidence that this does occur where these forms overlap. This of course leads to greater variation within the species. Second, and this is probably the more important factor, hybrids occur freely between the various species. Now picture the confusion that can occur here. We have two parents that are themselves segregating, and by this we mean to a certain extent still evolving, and they cross. The resulting progeny can be any one combination of the various factors which make up the parents.

To clarify this point I will consider two examples.

In another genus, namely *Pterostylis*, natural hybridisation is not uncommon. Here however, the parents are usually stable in their characters. Consider *Pterostylis toveyana* A.J. Ewart & Sharman. This is a natural hybrid between *P. concinna* and *P. alata*. These two species vary little over their range whether one considers plants from N.S.W. or Tasmania. This is because they are evolutionarily stable. That is, their genes have stabilised themselves with time and give rise to the plants as we know them today. When forming a seed the plants contribute half their set of genes and as these are stable the resultant progeny are the same as their parents. Hence when a hybrid occurs between two such stable species the resultant progeny is itself slightly variable but predictable. Thus *P. toveyana* always has a lanceolate labellum with a small bifid tip, a labellum which is a neat combination of the two parents. The rest of this orchids makeup can be seen to come from the parents. A similar result can be seen in the recently named *P. conoglossa* W.T. Upton, of N.S.W.

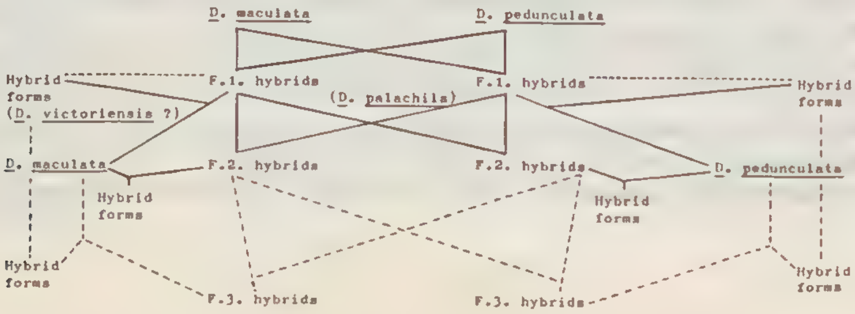
However, going back to *Diuris* for the second example, we can see the beginnings of the problem. In a patch of *D. maculata* not all the plants will have the same genetic characters; that is, they are not stable. Place alongside these an equally variable group of *Diuris pedunculata* R. Br. and allow hybridisation to occur. The resulting progeny will be, except for a few characters, completely unpredictable. A few of the hybrids will be very similar but the majority will be dissimilar. Now take the same two parents from a different area, say the Grampians, and allow them to hybridise. Once again the hybrids will vary. However, now compare the hybrids from the two populations and one would consider them to be completely unrelated.

The problem however, does not finish there. Cross pollination occurs between the hybrids themselves, not to mention backcrosses of the hybrids to either parent. The resulting confusion is termed a "hybrid swarm".

I have closely examined one such hybrid swarm at Warrandyte over several seasons. This was between the species mentioned earlier, *Diuris maculata* and *D. pedunculata*. The result was very confusing and had I been a raw amateur, I could have easily named five or six new species from it. It was possible to distinguish the straight hybrid. This of course is the plant known as *D. palachila*, an extremely variable species. Some others in the swarm were different and these I would say were the result of the hybrids crossing. This was an extremel variable group. The third group distinguishable, was the back cross of the hybrids to the parents, *D. pedunculata* and *D. maculata*. These were few in numbers.

This hybrid swarm can be represented diagrammatically.

Diagrammatic representation of the *Diuris maculata* - *D. pedunculata* hybrid swarm at Warrandyte, Vic. — represent known crosses. -- represent possible crosses.



continued page 121.

Some Thoughts On The Taxonomy Of The Genus *Diuris*. cont.

The problem of taxonomy in the genus *Diuris* then boils down to two facts -

(1) there is a great amount of variation within any one species.

(2) hybridisation occurs between species and forms giving rise to very confusing identities.

To solve the problem taxonomically we must consider two questions:-

(1) how much variation do we allow within each species ?

(2) what do we do with natural hybrids ?

For the first my answer is to simply use the concept of a species complex and not to attempt to split off sub-species and forms. These orchids are obviously not suitable subjects for splitting into these finer fractions. The limits of each species would have to be defined, but this would not be as difficult as it first seems, because the genus can be split into what I will term basic species.

To me these are:-

Diuris palustris Lindl.
D. aurea Sm.
D. longifolia R. Br.
D. platichila FitzG.
D. sulphurea R. Br.
D. venosa Rupp
Diuris brevifolia R.S. Rogers
D. maculata Sm.
D. pedunculata R. Br.
D. punctata Sm.
D. tricolor FitzG.

There may be a couple of other basic species that I am not familiar with, however, these appear to be the main ones.

Many of the other named species seem to be only forms of these or hybrids from them. I have made no attempt to classify Western Australian species, however, the foregoing remarks apply equally to them.

As an example of the problems that can still occur after a species has been studied and various forms selected out, consider the *D. punctata* complex. In 1964 A.W. Dockrill published a comprehensive critical revision of this species. Since then we have had various criticisms and contributions added piecemeal by various authors. Where do we stand today - still confused ? The work was ideal in that it cleared up the misunderstanding involving such species as *D. alba* R. Br., and *D. cuneata* FitzG. However, the splitting up of the comples into the various species and forms is most unsatisfactory. Consider the var. *punctata*. This is split into the forma *punctata* if it has spots on all segments and the forma *blakneyae* if it has no spots, or spots only on the labellum. What happens if it has spots on the petals only ? I submit that the presence of spots in this species is a variable characteristic useless in identification. I have seen plants spotted variously on the perianth parts, growing alongside unspotted plants in the same colony. I have also seen plants of var. *alba* from the Atherton Tableland which seem to grade into the var. *parvipetala*. The main differences here seem to be of size only. Dockrill's interpretation of the var. *albo-violacea* is entirely erroneous. Apart from its scent and dwarf stature, this form grades into var. *punctata*. Where then do we start and stop ? Dockrill's drawings themselves show a perfect gradation between the various forms so what is the use of picking out extremes when there are all sorts of intermediates to link them.

From past work it is obvious that some characters used in identification are misleading. Colour is one of these. It is so variable within any one species as to be useless. The shape of the lamina of the lateral petals and the length of the claw is also extremely variable and should be used with caution. An example here is *D. pedunculata*. Its lateral petals are usually elongated, narrowing towards the apex. However, alpine forms often have quite rounded segments. The crossing or otherwise of the lateral sepals should also be used with care, age can have a bearing here. The only reasonably satisfactory criteria seem to be the labellum, in particular the callus, and the column. However, it is very difficult to define differences in the latter organ.

My answer to the second question stated previously is that natural hybrids in the genus *Diuris* should be recorded, but not named. I know it is perfectly legal to name natural hybrids, however, we have seen the confusion that can result from hybrid swarms. With the difficulty of defining a set of characters which will always identify the plant, the advisability of the practice is questionable. There is no doubt that much of the present confusion has resulted from this practice in the past. It is no wonder that specimens fitting the rigid set of specifications laid down at the time of naming can no longer be found; or can only be found in existence with a multitude of variations. The fact that five or six species can be named from the one hybrid swarm decrees that the practice be dropped for this genus.

continued page 122.

Some Thoughts On The Taxonomy Of The Genus Diuris. cont.

These then are my thoughts on the taxonomy of the genus Diuris. In some cases I have been critical, but I have set out to offend none. My ideas may be rediculous and I have no doubt that some criticism will follow. If however, the article stimulates some people into thinking along these lines then it will have achieved its purpose.

David L. Jones, 2 Kathleen Close, Bayswater, Vic. 3153.

PRESIDENT'S REPORT 1969-1970.

R.G. Napier.

This is my first report to members of A.N.O.S., in which I shall attempt to summarise the activities of our Society during the past year 1969 - 1970.

Over the period, eleven meetings of Council were held, attendance of Council members was as follows; R. Napier 11, Eric Gordon 11, K. Ingram 2, Lloyd Bradford 11, H. Jay 11, Murray Corrigan 11, E. Marygold 8, A. Reeves 1, M. Spence 9 and D. Dawson 8. Also new members of Council appointed to casual vacancies occurring during the year, Jack Davies 2 and Fred McKinney 2. Bill Murdoch also attended the first 2 meetings of Council as co-opted membership organiser, until his wife's health necessitated his giving up his monthly round trip from Coal Point to Sydney, to attend Council. We have also lost the services of Alan Reeves during the year because of increased business responsibilities. Both Bill's and Alan's able assistance in Council has been missed over this latter part of the Society's year.

We have gained the assistance of Margaret Spence, who has lightened Harold Jay's burden, and while, possibly, one should not single out any particular Council members for praise for their work over the 12 months, I would personally like to thank Harold Jay and Eric Marygold for their efforts in running the Society, for after all, the Hon. Secretary and Treasurer do, between them, actually administer A.N.O.S., also deserving of praise, Murray Corrigan and Eric Gordon in publishing The Orchadian, their refusal to compromise accuracy for any other consideration is most laudable.

Eric Gordon has also, as Immediate Past President, offered his considerable experience in lightening my position as President.

Five issues of The Orchadian have been published, again we have been limited by the lack of suitable materail for publication.

No new groups have been formed over the past 12 months, but existing groups have been consolidated, and several now publish their own bulletins.

Membership has shown a small but steady increase over the years since 1963, our 1969 - 1970 figure being 30% over the 1963 total, in fact membership totals over the years show as an ever rising curve interrupted only by a peak of 503 for 1968 - 1969 (due to interest generated by the 6th. W.O.C.), our present membership (subject to upward adjustment still) being 438.

Congratulations to founder and first life member Bill Murdoch on his being made a life member of Newcastle, Victorian and Toowoomba groups.

A.N.O.S. MEMBERSHIP 1963 - 1973.

For the interest of members we publish below a complete report of financial members from foundation of the Society to 1973.
1963 - '64 334, 1964 -'65 336, 1965 - '66 341, 1966 - '67 370, 1967 - '68 434, 1968 - '69 503, 1969 - '70 438, 1970 - '71 350, 1971 - '72 15, 1972 - '73 2.

BILL MURDOCH - LIFE MEMBER.

Congratulations to Bill Murdoch on his recent election as a life member of the following A.N.O.S. Groups - Newcastle, Melbourne and Darling Downs.

LATE ARRIVAL OF THE ORCHADIAN.

Our apologies to members who received their Vol.3. No. 9, issue of The Orchadian. We understand that some members did not receive their copies until after the Annual General Meeting. We have arranged that issues containing such important information are posted earlier, to ensure that they are received in ample time.

ORCHIDS OF PAPUA AND NORTH QUEENSLAND.

R. Smythe.

I have just completed a trip from Townsville to Port Moresby and then to Daru, and finally back through the Torres Strait Islands to Townsville. This trip brought many surprises to me, a resident of north Queensland, which should interest native orchid enthusiasts.

The first surprise to me was the generally similar climate of all places visited. The low rainfall is confined to the wet season. In fact all areas were as brown if not browner than Townsville. If this was not enough, I was then amazed at the similarity of orchid species in these areas in Papua to those species found in north Queensland. Many orchids which I have subconsciously come to consider mainland orchids occur in Papua.

My first week in Papua was at the A.N.Z.A.A.S. conference in Port Moresby. This left me little time to see orchids. The first plant that I was to see was *Dendrobium discolor*, collected a few miles out of town. Some growers up there refer to these as the "double golden". This comes from the very twisted nature of the petals. These petals usually twist to such an extent that they either tangle up on top of the flower, or even cross over into complementary positions. The sepals and petals are long and slender, while the lip is short.

During the conference a trip was arranged to the Segui plateau, at the foot-hills of the Owen Stanley Range. My second orchid, spotted growing just above sea level was believed to be *Dendrobium bifalce*. This was no surprise as I always considered it an intruder into Australia anyway.

For some reason or other I was surprised when the next orchid I saw was *Dendrobium smilliae*. I always believed Papua and New Guinea to be the home of the Pedalonums, but, I had expected that one of the other members of this section would have been much more common. Further up on the plateau I saw other orchids growing in the rubber plantations. Some of these proved familiar to me from collections in Townsville.

The only flowering plants that I had seen up to this stage were *Dendrobium discolor* and *Dendrobium smilliae*. When talking to Mr. Hermon Slade about my observations of these Australian mainland Dendrobiums in Papua, he mentioned plants of *Dendrobium canaliculatum* that he had received from a friend who collected the plants in Papua, near Daru. Daru is a small island situated in the Western District of Papua.

Next stop was Daru, unfortunately it was pay night when I arrived and as such canoes were not for hire. This meant I could not get over to the mainland of Papua while I was there. The canoes would go back on Monday, or when the pub ran out of beer. The latter did not seem likely and the former was not possible as I had a charter flight arranged to Horn Island on the Monday. I dceided to look around the island and see what orchids had been collected by the locals. I visited Mr. W. Bates and Mr. I. Pendergast and here lies the foundation of this article. They assured me that all the orchids that they had were collected in Papua, with the exception of one New Guinea species which had been sent to them believe it or not, from Australia. This species being *Dendrobium anosmum*. My big surprise was then to find *Dendrobium johannis* in full flower. These were scattered all over the yard and looking most attractive. It was a striking, large form, rather light in colour with the yellow diamond shaped mid-lobe being most prominent.

I have heard scientific reports delivered stating that during the ice ages the seas retreated allowing Australia and New Guinea to be joined by land for millions of years. If the flora then was anything like the flora of today I could visualise mangroves and tea tree's spreading all along what is now the ocean floor. Therefore I am not surprised that *D. johannis* and *D. canaliculatum* could have migrated across, but, I would like to pose the following question. Why has not *D. bigibbum* var. *bigibbum* been found in Papua ? I believe it will be found in the Western District and I am just waiting for someone to offer to finance a trip to this area to find it. Less than an hour's flying time to the south I found all three species growing side by side in the Torres Strait Islands. Daru had many other orchid plants of interest to Australian readers. These I remind you were found in Papua. Though flowers were not present I am in no doubt as to the following species: *D. discolor*, *D. bifalce*, *D. luteocilium*, *D. smilliae*, *Pholidota pallida* and *Bulbophyllum baileyi*. The latter mentioned orchid might register some surprise with the readers, but, it is less surprising to me now that I have met Mr. Dennis Kitchen, who has found this species growing in the Torres Strait Islands. Two other orchids that I saw were possibly *Robiquetia tierneyana* and *Eria inornata*. There are too many closely related plants here which look alike to be at all sure of their identifications. I was also taken aback somewhat by a plant morphologically similar to *Dendrobium tetragonum*. It had the same pendulous habit and square pseudobulbs.

continued Vol. 3. No. 11.

THE AUSTRALASIAN NATIVE ORCHID SOCIETY

STATEMENT OF RECEIPTS AND PAYMENTS

GENERAL ACCOUNT

	1969-70	1968-69		1969-70	1968-69
	$	$		$	$
To Membership subs.	567-75	679-25	By Rent for meeting	-	4-00
To Bank Interest	55-64	40-64	By Printing & Stationery	33-69	128-60
To Donations	-	12-00	By Affiliation Fees	20-75	20-00
To Sundry Income	-	1-00	By Expenses 6th. W.O.C.	65-84	-
To Flasking Receipts	41-00	-	By Petty Cash Expenditure & Postage	111-01	97-05
			By Prizes	14-20	14-20
			By Advertising	15-00	15-00
			By Newsletter Expenses	51-02	71-13
			By Group Expenses	-	157-20
			By Sundries		
			By Excess of Receipts over Payments	329-88	193-91
	664-39	732-89		664-39	732-89

PUBLICATION FUND ACCOUNT

	1969-70	1968-69		1969-70	1968-69
To Members subs.	568-75	685-00	By Printing etc. (Vol.3. No.3. to Vol.3. No.8)	972-57	1033-05
To Donations	31-60	36-40	By Folders & Envelopes	116-63	32-09
To Sundry Sales	33-50	46-55	By Binding Charges	136-50	92-50
To Binding & Sale of Bound "Orchadians"	228-70	404-20	By Back Issues	100-00	346-02
To Excess of Payments over Receipts	621-58	531-25	By Petty Cash Expenditure & Postage & Mailing Expenses	158-43	199-74
	1484-13	1703-40		1484-13	1703-40

RESEARCH FUND

	1969-70	1968-69		1969-70	1968-69
To Balance carried forward from previous year	1316-57	1108-41	By Expenses in connection with Sarcanthinae publication,		
To Sale of Sarcanthinae	127-50	472-50	Printing & Associated Costs	-	187-37
			Commission	-	50-00
			Postage	5-59	26-97
			Balance carried forward	1438-48	1316-57
	1444-07	1580-91		1444-07	1580-91

STATEMENT OF FUNDS

	1969-70		1968-69	
		$		$
Balance at Bank at 30th June		1524-67		1694-46
Comprising:				
Balance on Research Fund		1438-48		1316-57
Credit in General Fund	2295-94		1966-06	
Debit in Publication Fund	2209-75	86-19	1588-17	377-89
Available Funds		1524-67		1694-46

E. MARYGOLD
Hon. Treasurer

R. NAPIER
President

I have examined the books of the Australasian Native Orchid Society and report that the above Statement of Receipts and Payments is in accordance with such books.

F. Wakeley A.A.S.A. A.C.I.S.
Honorary Auditor

NS

THE ORCHADIAN

DECEMBER, 1970.

Page 125.
Vol. 3. No. 11.

PRICE: 30 cents

Published by The Australasian Native Orchid Society.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
26 OCT 1972

Council

Patron:	Sir John Hall Best	Vice Presidents:	L. Bradford
President	R.G. Napier		J. Davies
Hon. Secretary:	H. Jay	Editor:	M.J. Corrigan
Treasurer:	E. Marygold	Asst. Editor:	F. McKinney
Records Sec.:	D. Dawson	Immediate Past President:	Eric Gordon
Minute Sec.:	M. Spence		

REGISTERED FOR POSTING AS A PERIODICAL - CATEGORY B.
Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000

AUSTRALASIAN SARCANTHINAE - A Review of the Subtribe Sarcanthinae in Australia & New Zealand.

Your Council has a quantity of completely sewn and collated copies of the above Society publication for sale at a reduced price. They are complete but not bound with covers. The price $1 per. copy or 80¢ per. copy, for orders of 10 or more copies. Post your order to the Society, and do not forget to include your cheque and return address.

AUSTRALIAN GROUND ORCHIDS by Densey Clyne.

Members will, no doubt, not be expecting further publications on the native orchids of Australia following recent publications. Well, just to ruin your budgets, here are two new books on the subject.

Densey Clyne's book is a little gem, just the right amount of technical information mixed with a great deal of interesting information and masses of drawings and black and white colour plates.

Following a brief introduction, the book contains an excellent chapter headed 'Orchids and Other Plants' which has some most instructive sub-headings - 'Classification', 'Structure of an Orchid', 'The Flower', with 7 line drawings, 'The Leaf', 'Saprophytes' and 'Sex Life of Orchids'. All written in an easy to understand style that characterises all of Mrs. Clyne's works. The text and illustrations are clear and accurate, itself a joy, when one views the number of errors in some recent works. All members will need a copy of this excellent book whether they by the serious type or rank amateur. The photography is a joy to see, with accurate colour rendition in almost every plate. Mrs. Clyne takes all her own photographs and her chapter 'How to Photograph Orchids' isa must for anyone interested in capturing on film our unique native orchids.

Australian Ground Orchids by Densey Clyne. 7¼" X 5". 112 pages with 4 colour cover. 64 pages in full colour and 14 B & W plates. Published in the Periwinkle Colour Series by Periwinkle Books. $1.50 each, from your book shop. Field naturalists will find a mine of information in this Colour Book Series with 22 titles.

AUSTRALIAN NATIVE ORCHIDS IN COLOUR by L. Cady & E.R. Rotherham.

The combination of Leo Cady's text and Ted Rotherham's photography has produced a book of sheer beauty. From the moment you see the 4 colour printed dust cover and its duplication on the hard cover of the book you are conscious of superb photography most ably reproduced, unfortunately for the Australian printing industry this book has been printed in Japan.

Leo Cady is known to most Australian native orchid enthusiasts for his study of our orchids for the last 20 years. His definitive papers on our orchids having appeared in all the recognised publications for many years. The text unfortunately is a little inconsistent, and it is a shame that the work did not receive serious editing before publication to eliminate

continued page 151.

ORCHIDS AT LAKE MOUNTAIN.

David L. Jones

Lake Mountain is part of an elevated granite region situated approximately 12 miles north-east of Marysville in Victoria's southern highlands. It rises to 4,800' altitude and the chief interest lies in its sub-alpine vegetation. This contains a good representation of those plants found in similar areas in the north-east of the state. It is by far the closest such occurrence to Melbourne and is botanically rich with about 150 species being recorded. Orchid-wise, there is not a great collection of species but those present are found in considerable numbers and are very interesting.

In this article I will deal with the orchids found between 4,500' and 4,800' altitude. Typically these are sub-alpine or high rainfall species. There are only five in number and they are common in many other areas of the state.

Chiloglottis cornuta - this species is extremely abundant up to about 4,500' altitude, but, apparently does not extend into the sub-alpine bog areas. It grows in a wide variety of habitats and may be found in thick rotted leaf mould in running water or boggy conditions under dense stands of "Woolly Tea-tree" (Leptospermum pubescens). As well I have found it in the open amongst grass (Poa sp.) and even on dry, stony ridges under thick stands of "Hickory Wattle" (Acacia falciformis). Its ability to tolerate dense shade is amazing and in many solid stands of Leptospermum it is the only plant to grow on the ground.

I have noticed that in boggy situations the colonies are usually sparse but the plants flower freely. In the drier situations on the ridges the colonies are dense, and non-flowering plants predominate.

The flower itself is predominantly green and inconspicuous. On the upper surface of the labellum there are a variable number of large colourful calli in an equally variable arrangement. It is interesting to note that while the labellum of this species is mobile, it is nowhere near as irritable as in C. gunnii. Each flower only seems to last a couple of days but there is a succession of flowers maturing in any colony from December to February. The whole nature of the plant and the pollinia suggests self pollination. After pollination the pedicel elongates to release the seeds. At this stage it presents quite a comical appearance with the swollen ovary surmounted by the withered perianth segments suggesting some forlorn topknot.

Caladenia lyallii - the "Mountain Caladenia" extends from about 4,600' upward and increases in abundance with altitude. At 4,800' it is a very common orchid. It grows with the "Snow Gums" (Eucalyptus pauciflora var. alpina) and more or less follows their limits, but is absent from the alpine bogs. It often grows in very rocky places and I have noticed it has a preference for crevices where leaf litter has accumulated over a long time. In such spots the plants are robust and the tubers thrive in the chocolate flaky material.

The leaves of the species must rank amongst the largest in the genus. They are up to 8" long and ¾" broad and are generally very conspicuous. However, they may be hidden amongst the dense tussocks of "Snow Grass" (Poa sp.) with which the orchid invariably grows. The flower stalks rise to about 10" and bear one or two fairly large pale flowers. The perianth segments are thick and waxy with the dorsal sepal being very broad and hooded. The labellum is marked similarly to Caladenia carnea and exudes a faint but distinctive odour reminiscent of a much diluted Caladenia angustata. The new tubers are large, pearly white and situated lowermost in a chain of fibrous sheaths. They are found 3" - 4" deep in the soil, generally close to a submerged rock.

The species flowers exclusively in December on Lake Mountain. Each flower seems to be rather short lived (3 - 4 days) and a hot spell of early summer weather quickly finishes the majority off.

Pterostylis alpina - on Lake Mountain there is a form of greenhood which for want of a better name we call Pterostylis alpina. It differs from the usual form of this species by having a longer protruding labellum and galea. It occurs in colonies at about 4,500' altitude and flowers in January - February. It prefers sheltered situations amongst grass, ferns etc. on stream banks but is also found in the wet areas associated with "Tea Tree". Occasional plants will be found actually growing in the boggy beds of small streams in the manner of Pterostylis falcata.

The large translucent green and white flowers are very handsome and a colony in bloom is an impressive sight. The plants themselves grow up to about 15" tall and each has a rather luxuriant set of leaves.

Prasophyllum suttonii - this species is certainly one of the most beautiful of all our "Leek" orchids. It is extremely common on Lake Mountain and surprisingly extends into a number of habitats.

continued p. 127.

Orchids At Lake Mountain. cont.

It ranges from about 4,500' to 4,800' altitude. At its lower limit it is to be found in herbfields adjacent to stands of"Woolly Tea-tree".Here the plants reach full bloom about a week earlier than those at 4,800' and may be very robust with flowers sometimes 1½ - 2 times the usual size. From here the species extends to 4,800' as scattered individual plants or small colonies amongst"Snow Gums"and associated shrubs or around small pools. At 4,800' it is especially abundant amongst the"Snow Grass"of the sub-alpine herbfield. In this association of dwarf plants the flowering spikes of the orchid are quite conspicuous. Indeed even early in the season the terete leaves are easily seen. Occasionally specimens will also be found growing in the sphagnum bogs bordering pools and rivulets.

On Lake Mountain the orchid flowers mainly in late January and February. The spikes are generally about 12" tall and bear a short head usually of 10 - 15 flowers. Each flower is quite colourful. The labellum is a glistening pure white, with lovely wavy margins and the lateral petals are similar, but with a central, wine-red stripe. However, as with all Prasophyllums the flowers are extremely variable and a typical flower is difficult to define. Albinos are fairly common and are striking when compared to colourful plants. Despite its beauty the species lacks any semblance of the delightful fragrance which is common to many members of this genus.

Thelymitra venosa - what a truly delightful sight is a colony of these dainty orchids in full bloom. We saw this sight repeated again and again in the 1969-70 season. This had been a good one with ample late spring and summer rains and the sun-orchids had responded with a massed flowering.

On Lake Mountain this orchid is confined to the sub-alpine bogs at 4,500', flowering in January - February. Here it is very common, growing typically in pads of sphagnum moss bordering the banks of rivulets or soaks but occasionally also in the peat soil amongst sedges, etc. It typically grows in colonies. I am not sure if these are as a result of vegetative reproduction as it does not show this tendency in cultivation. Instead I feel they are due to seedling growth as these are very common and readily seen when the moss is examined closely.

The orchid has a slender linear channelled leaf, the tip of which blackens and makes it easy to find. The Lake Mountain form bears a solitary, or occasionally two, pale blue flowers atop a wiry stem that is usually about 6" tall. The flowers are about an inch across and expand readily on warm days. The perianth segments have faint venations which give the plant its specific name. The labellum is unusual for a Thelymitra in that it is easily differentiated from the other petals. The column also is very distinctive. It is surmounted by two curious glabrous wings which coil above the anther. On the mid-lobe, between these wings, there are a series of crests reminiscent of T. ixioides.

David L. Jones, 2 Kathleen Close, Bayswater, Vic. 3153.

A.N.O.S. NEWS - NEWCASTLE GROUP.

The 3rd. Annual show of the Newcastle Group showed a big advance on previous shows.

Co-opted by the Newcastle group, several district bodies joined in, to make the occasion entirely successful.

The Lake Macquarie & District Lapidary Club displayed a magnificent collection of gemstones, fossils, and artifacts associated with their activities. The merit of the display is proved by the two bus loads of viewers from Sydney, a distance of 100 miles.

A pool, waterfall, palms, and decorative stones, were loaned by the Supervisor of the Parks and Gardens of the City of Newcastle (Mr. Bob Garside), and made an interesting background to the ensemble.

The Cardiff Lions Club again co-operated, and functioned in active participation in managing the show, whilst the Newcastle Fauna and Flora Protection Society, displayed numerous placards enjoining conservation.

An outstanding display was made by Dot Penfold. About 120 plants, mostly northern Queensland, and to a large degree, collected by Dot herself, was more than usually educational. Her Angraecum sesquipedale (Madagascan), had two large flowers, This plant, of more than common interest, is difficult to grow, and is historically famous. Having examined the plant, Charles Darwin said, "Somewhere in Madagascar, there is a moth with a proboscis at least 11 inches long." We are told that Darwin had been dead 15 years before the moth was found.

Of the more notable exhibits was Joe Rigby's large plant of Dendrobium adae, grown by Joe for

A.N.O.S. NEWS - Newcastle Group. cont.

more than 7 years, in a cool-house. Again, Mrs. Borger's large pot of Bulbophyllum elisae proved the general belief that this plant is difficult to cultivate, is not necessarily so. Some few plants were growing on hardwood slabs, and suggests, that of the many media used in orchid culture, the hardwood slab offers the most durable, and as such, is a real step toward conservation. Our President's (Ross Landridge) Dendrobium linguiforme var. nugentii was an outstanding example, as was Bill Taylor's plant of Rhinerrhiza divitiflora, and Sarcochilus falcatus on a hardwood raft.

Of interest to readers in other places, it can be noted that Dendrobium linguiforme var. nugentii, although a tropical plant, thrives in bush-house conditions in our latitude, viz. 34°.

One plant made its debut on the show bench. A cross between Sarcochilus hartmannii and Rhynchostylis retusa. As yet un-named, the seed pod being produced by a Murwillumbah member, and given to me, for flasking by a Newcastle member.

The plant resembles a small Aerides in the regularity of its leaves, in size, and firmness, as different to the average Sarcochilus hartmannii. The short, erect, spray had 8 shapely flowers about the size of a 5¢ piece. Petals and sepals equal, narrow at their base, and broadening to the apex, more correctly described as spatulate. Colour, cream with a faint pink suffusion, regularly spotted all over with tiny pinpoint mauve spots. The lip, prominent. much more pointed than that of Sarcochilus hartmannii, and of a deep pink. This collectors item is still comparatively unknown. One is said to be in flower in Grafton, and another in Port Macquarie.

Another Sarcanthinae cross was the Sydney produced Sarcochilus hartmannii X Sarcochilus ceciliae. A small flower, not glamorous, but still of much interest.

Numerous exhibits of the Dendrobium kingianum group were most spectacular. These included the more recently produced D. Bardo Rose, which ranged in colour from the pure whites, to dark pink. It may be pertinent to point out at this moment, that considerable variety is being produced by the D. kingianum crosses with D. gracilicaule (D. suffusum), and D. tetragonum (D. Ellen), and others of this group, and it is increasingly difficult to differentiate between the flowers.

Prize winners ? None, as Newcastle Group shows only for their love of flowers. This may seem to be pointed, but it is not so. It was agreed some few years ago, that no prizes, or point scores were of interest to us. Judging by our progress, it appears to be a happy decision.

Reported by Bill Murdoch

POLLINATION BY THE COMMON NATIVE BEE.

R. Smythe

It appears that the common native bee Trigona caponaria is responsible for the pollination of many Australian native orchids. So far I have reported its pollination of Dendrobium speciosum.

On many occasions prior to, and since this observation I have seen it visiting Dendrobium lichenastrum. Recently I saw it withdrawing itself from the flower and I noticed a slight sparkle coming from an appendage on the thorax. I captured the insect and observed that this was in fact the pollinia of the flower. From the frequency of visits and the number of pollinations that occur I am quite sure that this is a pollinator of the flower. It would be quite impossible to see a bee carry the pollinia in and pollinate the flower, as the pollinia is so small and the insect is so quickly absorbed within the flower. The actual insect that I caught was most persistent and returned to the flower several times before I caught it. One interesting point is that the insect fell to the ground at one stage, suggesting intoxication.

Some of the flowers of this plant are borne upside down. I immediately thought that this might have been a mechanism to prevent self pollination. By that I mean, that I thought it might be possible that the flowers turn over after having the pollinia removed. I have checked this out and it is not the case. It appears that the flowers in the normal position i.e. with the labellum providing a landing platform, are the ones pollinated. My question as to why so many flowers are upside down is left unanswered.

The two bees that I have reported so far, are of the same species, but are different in that the one pollinating the Dendrobium lichenastrum has what appears to be a hunched thorax. So far I have only observed them by eye.

At some later time I hope to draw these for future reference.

continued page 149.

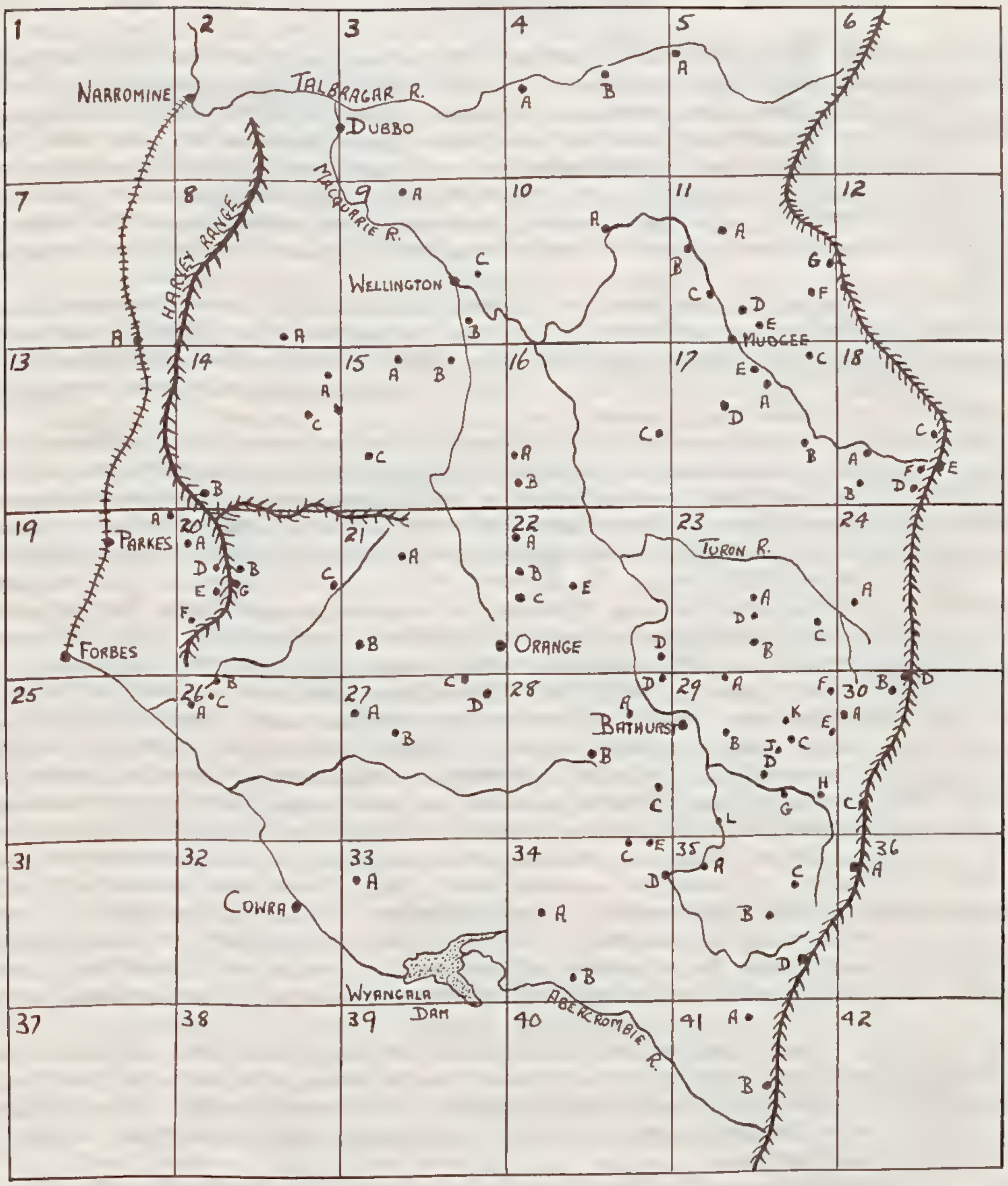
ORCHID FLORA OF THE CENTRAL WEST, N.S.W.

by

C.K. Ingram & B. Whitehead

-o-

1970



Publised by
THE AUSTRALASIAN NATIVE ORCHID SOCIETY
-o-

Typed and prepared for publication
by
M.J. Corrigan
-o-

ORCHID FLORA OF THE CENTRAL WEST

N.S.W.

o O o

INTRODUCTION

It is interesting to trace the progress of orchid discovery in the Central West of N.S.W., since Cunningham collected the first specimen for the area, Diuris pedunculata, on the Macquarie River, about 1820. Rev. Dr. Woolls, between 1860 and 1880 added 12 first records, Dr. Ross 5 from Molong and Sheaffe 2 from Forbes (both per FitzGerald), and Rev. Mr. Collie 6, presumably from Mudgee. The first comprehensive and systematic study was made by A.G. Hamilton in the Mudgee district in 1886 - 7, 39 of his 62 collections being new records. He was followed by Clunies Ross (13 species, 2 new records, from Bathurst, 1898), and Blakely and Wiburd, who contributed 9 new records from among the 22 they listed for Jenolan Caves during 1899 - 1900.

Following the rather static period of the two World Wars and the Great Depression, a second upsurge of collecting activity was ushered in by the Althofers from 1945 onwards: they added several records to the now respectable total. Their efforts were supplemented by Brinsley, 7 new recordings, Ingram 6, Giles 5, Mair, Johnson and Constable 3 each, Bowden at least 2, and Blackmore and Dockrill 1 each.

Rupp, in 1948, tabulated all known orchid data for the entire area - 83 different species - but he did little collecting thereabouts himself, relying almost entirely on the Althofers for his material. The Giles brothers have ranged widely from their base at Springside - 129 recordings - Ingram 200 from Mudgee, Forbes and Bathurst chiefly, and Brinsley about 300 from the Bathurst district in the relatively brief period since 1960. Other major collections have been made by Whitehead, 90, Bowden 39 at least, Blakely 32, Blackmore 20, Boorman 19, Clemesha 16, McFarland 14 and 10 each to Constable and Rupp. In all, a list of approximately 134 species and varieties of native orchids, terrestrial (125) and epiphytic (9) has been compiled herewith for the Central West, compared with 145 recorded by Bowden for the adjacent Blue Mountains area (1962) and 77 by Cady for the Illawarra (1960).

Tabulated herein are approximately 1400 individual recordings made from details kindly supplied from existing collections - those at the National Herbarium, Sydney (including the Deane, Rupp and Scammell specimens), Dockrill, Bowden, Blackmore, Clemesha, Mowbray, Cady, Whitehead, Brinsley and Ingram - and careful search of published and manuscript material.

As full documentation as possible is given, although it must be noted that collectors such as Hamilton, Ross, Collie, Giles, Blakely and Althofer may not have recorded full date and/or locality in some instances. It must be appreciated, too, that much material is no longer available for examination - the FitzGerald, Ross, Blakely, Sheaffe, Hamilton, Althofer and Giles collections were not always preserved, either by the collectors or the recipients: FitzGerald destroyed any material he acquired after completion of his drawings, and present whereabouts of much of the Althofer material forwarded to the Rev. H.M.R. Rupp is not known to us.

Hence, it is only fair to state that where, in the following lists, the above collectors' names appear without recent substantiation of thier recordings, there is a possibility of erroneous determination or faulty concept of a species. In other cases, it may mean, of course, that the rabbit, the overstocking of pastures and/or the opening up of the country, have led to the species extinction.

At this juncture, it is worth recording that there is a conviction current among collectors that the wholesale extermination of rabbits in the area under discussion over the last 15 years has brought about a gradual re-emergence of orchids. This is welcome news indeed. The use of 1080 rabbit poison at Wyangala Dam has seen the re-emergence of several species'not previously recorded from there, including Corybas diemenicus in abundance.

It seems well substantiated, too, as Rupp noted in a personal communication to G.W. Althofer (27-7-1945), "that some orchids 'rest' over several seasons and then re-appear." It is quite conceivable that all terrestrial orchids do so, but it would require very careful observation over a lengthy period to prove that there is any regularity about this habit, in other words, a "flowering cycle". Rupp's remark: "Seasonal conditions probably have a good deal of influence in the matter", is corroborated by the experience of Althofer, Giles and other careful local observers. Whitehead considers that seasonal conditions are *the* most important factor contributing to the irregular appearance of many species. Miss Bowden advances an interesting theory: "With regard to the 'resting' of orchids -- of course all flowers -- tubers, bulbs and rhizomes, in particular, - do vary in their flowering habits, but I think the dependance of orchids on the fungal element in the soil - or rather the rather warlike association which is now believed to exist - may be far more prevalent than at present known, and that the over-activity of the fungus in some seasons may account for the non-appearance of flowers. It is only a guess of course - so little has really been done to study this association."

Mrs. A.I. Smith recorded the appearance of *Prasophyllum fitzgeraldii* at Wallerawang once only in six years; Giles, *Corybas fimbriatus*, freely at Springside, Easter 1959, only, and Ingram noted similar irregular occurrences of *Spiranthes sinensis*, (1961) and *Gastrodia sesamoides* (1960) at Mt. Tomah. In 1961, Brinsley and Ingram, on separate occasions, searched a likely donga at Yetholme Trig., in due season, but fruitlessly, for *Corybas diemenicus*. In 1962, Brinsley reported its appearance in considerable numbers.

Although data is too scrappy to present for any worthwhile conclusions to be made, here is an interesting field of investigation for the local enthusiast!

Even though, strictly speaking, the Jenolan Caves themselves are on the eastern fall of the Great Dividing Range, they are included in the study area, as it is impossible to determine precisely where Blakely collected the particular species listed. In any case, the work of Brinsley, Johnson and Constable, Cambage etc., seems to prove that all of Blakely's Jenolan specimens occur or will be found to occur, on the western side of the Divide there, or on the other high country further west (e.g. Giles' discoveries at Mt. Canobolas). To date, in fact, only one Jenolan orchid species, to wit *Pterostylis grandiflora*, has not been recorded elsewhere in the area.

The genus *Diuris* is the most remarkable group of native orchids in the Central West, and the most puzzling. At one stage, 31 species of the genus were recorded for N.S.W., and of these, 27 came from within the defined boundaries. Much work is being done on this genus in order to understand it more fully. The variability of the specimens of *Diuris* in Central Western N.S.W. is now well known, but nevertheless, a brief summary of the history of work on the genus in the Central West will give an indication of the problem faced by early botanists.

As a result of a plethora of material provided by the Althofer brothers from the spring of 1945 onwards, Rupp first began to realise that taxonomists had a real problem on their hands. Gradually, however, he began to formulate definite ideas on the matter and on the 21st September 1945, he wrote: "A strange point which seems to be emerging is that, in some areas, natural hybrids appear to be produced so freely that definite specific determination becomes most difficult; yet in other areas hybrids are very rare, and the species are clear-cut. At Bullahdelah, Paterson and on the South Maitland Coalfields *Diuris* were plentiful, but only once or twice did I have any trouble in identifying species; nor is there much difficulty about Sydney. On the other hand, around Launceston in Tasmania, the different forms are most puzzling; so also on the Blue Mountains. Your district (Central West) seems to belong to this category also."

In a similar communication two years and many dissections later (24th September 1947), another possibility presented itself to him: "It seems to me that either certain species hybridise freely or else certain species must have been described too rigidly, without sufficient allowance for variations from the form that was taken as the type."

He then cites a normal instance: "*Diuris palachila* appears to dominate your specimens, but only one could be termed typical of that species. In the others there are features quite alien to the type form, suggesting affinities with *Diuris flavopurpurea*, *D. sulphurea*, *D. brevifolia*, *D. lineata* and even *D. brevissima*. Yet I doubt if I could say definitely of any of them: 'This is not *D. palachila*! It looks to me as if that species, under different conditions from those of the type locality in South Australia, exhibits a far greater variability than the late Dr. Rogers suspected it to be capable of."

(In the Rylstone area, what may be termed pure stands of *Diuris palachila* occur. Great variation in floral details and colouring occur but so far none of those distinct forms found in the Dubbo area, and which were elevated to specific rank by Rupp, have been recorded. Examinations of numbers of flowers of *Diuris palachila* indicate that the rarely recorded *Diuris platichila* may prove merely a form of *Diuris palachila* with a labellum broader than normal. W.B. 1962).

Rupp justified the creation of such species as *D. polymorpha*, *D. semilunulata*, *D.* flavopurpurea and *D. lineata* by Mrs. Messmer and of his own *D. althoferi*, *D. cucullata*, *D. cuneilabris* and *D. latifolia* (letter to G.W. Althofer, 19-11-47) by contending that: "Lumping is just as objectionable as 'splitting'; that is, while it is true that one can cause confusion by making mere variants from a type into unnecessary new species, one can cause equal or worse confusion by dumping into one species a number of forms that differ very conspicuously in important characters. One must try to avoid both errors."

A particular problem that interested Rupp within the genus *Diuris* itself, is colour. Writing of a series of 40 Althofer specimens received from the Yamble-Guntawang area, he states (26-9-47) in reference to the flowers: "The uniformity of the shade of yellow among all these is rather suspicious; colour is not a safe guide, but when you find a number of flowers, determined as different species closely allied, all clad in the same colour, one wonders if they are really all variants of one species. On the other hand, there may be something in climatic or soil conditions favouring the production of this lemon-yellow."

A similar variation, it may be recalled, led to the unacceptable separation of "*Diuris alba*" (Victoria) from *Diuris punctata* Sm.

Stem colour, too, has excited his attention, as a possible means of differentiating between the species. Although some workers have been inclined to accept it as a reliable feature, Rupp contends that many orchids develop dark stems in colder districts, citing *Diuris flavopurpurea* as an instance, though immature stems of the plant known as this species exhibit dark purple-red colouring as far westwards as the Dubbo area.

One could write at length on problems of individual species, e.g. the *Diuris brevissima/maculata* complex, in the Central West, but probably it suffices if one lets Rupp and Blackmore sum up: "I think that before long," says the former, "we must have a comprehensive review of the genus *Diuris*, and some of the existing descriptions must be enlarged to include variations that are not at present recognised, and are therefore a source of bewilderment to collectors and taxonomic botanists alike." (8-10-47).

Blackmore adds his opinion: "There are of course, still being found, specimens of *Diuris* which do not fit any of the existing species. However, it is almost certain that these have developed by natural hybridisation, and to raise them to specific rank, unless they can be shown to have established themselves in sufficient numbers, is only to confuse the position." (Personal communication, 22-11-61).

From the above, it became obvious that efforts would have to be made to collect further material in the Central West in the genus *Diuris*.

Now that there exists a body of keen, knowledgeable collectors in the study area, it is anticipated that the circulation of these records will stimulate them to fill in other gaps as well - for instance, *Cryptostylis leptochila* has only been recorded from two localities. *Lyperanthus suaveolens* records are very scanty; the same applies to *Caladenia reticulata*, *C. patersonii* and its variety *arenaria*, to *C. testacea* and *C. deformis*. *Pterostylis pedunculata*, *P. falcata*, *P. grandiflora*, *P. gibbosa* ssp. *mitchellii* and *P. longicurva* are recorded in only isolated instances also.

Cymbidium suave and *C. canaliculatum* are worthy of greater attention than they have received to date.

Among the spectacular finds of recent years have been:

1. The rediscovery of the quaint "Yellow Tongue", *Pterostylis barbata*, by Mair at Abercrombie Caves, 1951. (The only known specimen in N.S.W. previously was from Maroubra, Boyle 1908.)
2. The rediscovery of Hamilton's *Corybas diemenicus* at Curra Creek, 1945, by a school teacher named Johnson. (As Rupp, P.L.S., 1948, p.131, remarks of this find: "It is curious that...(these)...records are the only N.S.W. records of this little "Helmet Orchid" which are quite common near the coast in the southern states." Since then the Giles, Althofer brothers and Brinsley have made further collections of it.)
3. A fresh record of its close relative, *Corybas fimbriatus* at Springside by Giles, much further west than the original find by Blakely, Jenolan, 1900.
4. The discovery of *Pterostylis* nana at Abercrombie Caves, 1959, by Mrs. J. Ingram, when the only other record in N.S.W. was by Betche from Cobar. (Rupp (loc. cit., 1943, p.85) notes: "It is rather surprising that this species has not been reported from any other area in N.S.W. In Victoria, South Australia and Western Australia it is common in coastal districts as well as inland, and it is abundant in Tasmania." Brinsley, the Giles, B. Jones and B. Whitehead record it of recent years over an extensive area.
5. Giles' collection of *Pterostylis alata* from Four Mile Creek near Cadia, 1960, although Hamilton in 1886-7 had noted it from Guntawang. (Rupp, loc. cit., 1943, p.92. writes: "No N.S.W. specimens are available at present. The species is included here as it is

generally agreed that *P. striata* FitzG. from Yass, is *P. alata* (Labill.) Reichb.f., and Moore and Betche's 'Handbook' records it under the synonym of *P. praecox* Lindl. from "South Coast and Tablelands". It is fairly common in many areas in Victoria, South Australia and Tasmania.") Blackmore collected specimens some years prior to the Giles, in Apsley Falls area, near Armidale.

6. Giles' discovery of *Chiloglottis gunnii* and *C. reflexa* so far to the west as Mt. Canobolas in 1959 and 1961 respectively.
7. The Althofer collection of *Prasophyllum nigricans* in 1946. (Rupp, personal communication to Althofer, 9-4-46. said: "This specimen has given me a surprise. It is *P. nigricans* R.Br., which on p.143. of 'Orchids of N.S.W.' I said must now be regarded as a doubtful resident of N.S.W...." In a similar letter, a few weeks later, he remarked on the interesting nature of the discovery in that it was so well out on the west side of the Dividing Range.")
8. The discovery of *Pterostylis fischii* in the Yetholme area by Ingram in February 1963. It was originally collected at Woodside, Victoria, in May, 1949. Blackmore then found it in the Upper Grose Vally, N.S.W., in April 1959. Four years later it is found at two places near Bathurst within six weeks!
9. A collection by Brinsley, P. Althofer and Ingram of *Pterostylis clavigera* at Guntawang from where the first and only record had been made by Hamilton. The discovery of fresh specimens of this plant has been of assistance in the further investigation of this species.
10. The finding of specimens of *Pterostylis acuminata* by Lowe at Olinda in March, 1967. The flowering time of this collection was in keeping with the plant's usual flowering time, while the previous only known collection had been made in the spring.
11. Brinsley's collection of (i) *Calochilus saprophyticus* in 1962 and (ii) *Thelymitra irregularis* in 1964. Both were, and remain, first recordings for the area. The records for both plants in N.S.W. are sparsely distributed.

The position regarding orchid hunting in the Central West has also been summed up by Blackmore (loc. cit.): "It seems rather unlikely that many more of the common species will be found in the area...... The section of the list which is most likely to be increased is that of the small Prasophylls, i.e. Section Micranthum of the genus. (Few) species of these are included in the list and of these the specific distinction between *P. rufum* and *P. nigricans* is doubtful. However, on the adjoining Blue Mountains area over 20 species in this section of the genus are found, and it appears that there is a very good chance that a number of these may also occur in the sandstone sections at the east of the Central Western area."

Brinsley anticipates that further epiphytic species will be recorded from the heavy rainfall areas at the source of the Cudgegong River.

Two corrections in citation appear, made necessary by typographical errors in Rupp's "Orchids of N.S.W.", 1943. These are (i) p.16 *Diuris palachila* - Molong, Blakely, 9-1932, not 3-1932. and (ii) p.27 *Prasophyllum odoratum* - Jenolan Caves, Blakely, under "P. patens", 12-1899, not 12-1890).

In the citations following in the text of localities and recordings where (/) occurs, the first abbreviation denotes the collector, the second the present location of the specimen, e.g. B/NH. indicates that the specimen was collected by J.L. Boorman, and is now at the National Herbarium, Sydney. Where the abbreviations JB, WB, RM, SC, IB, AD, BW, and KI are used alone, the specimens were collected by these people and are housed in their own herbaria. In most other cases, where the collector's abbreviations or names occur alone, we have been unable to locate the specimen's present whereabouts.

Our thanks are due to the Chief Botanist and Curator, Mr. R.H. Anderson, B.Sc., for permission to examine specimens and records at the National Herbarium, Sydney; to Mr. K. Mair, B.Sc.. Director of the Royal Botanic Gardens, Sydney, for encouragement and advice, to Messrs W. Brinsley, J.A.P. Blackmore, L. Cady, A.W. Dockrill, R. Mowbray and Miss I. Bowden for making their records available, for checking determinations, and much other helpful advice, to the Althofer and Giles brothers for the fullest support in every possible way, to Mr. S.C. Clemesha for details of his recent collections, and to the members of the Bathurst Naturalists Society, whose love of Nature in all its aspects and enthusiasm for the conservation of our unique heritage never waver.

It is hoped that the publication of these notes will stimulate individual collectors and also arboretum, naturalist and wild life preservation societies to observe closely the appearance of our native orchids, to record data accurately and to co-ordinate their activities so that the preservation of these lovely and quaint flowers is effectively undertaken while there is yet time.

ABBREVIATIONS USED IN CITATIONS:

AC - Alan Cunningham, King's Botanist, 1791-1839.
B - J.L. Boorman, Botanical Collector, Nat. Herbarium, Sydney.
JB - John Blackmore, Beecroft.
EB - Ernst Betche, Assistant Botanist, Nat. Herbarium, Sydney.
WB - William Brinsley, Ballina.
WFB - W.F. Blakely, Assistant Botanist, Nat. Herbarium, Sydney.
LIC - Leo Cady, Kiama.
BW - Brian Whitehead, Dapto.
GPA - George & Peter Althofer, Dripstone.
WFG - William & Frederick Giles, Springside.
EFC - E.F. Constable, Sometime Botanical Collector, Nat. Herbarium, Sydney.
KI - C.K. Ingram, Epping.
JEI - Mrs. J.E. Ingram, Epping.
H - A.G. Hamilton, Guntawang.
HD - Henry Deane, Sydney.
SC - Stephen Clemesha, West Pennant Hills.
NH - National Herbarium, Sydney.
WJCR - W.J. Clunies Ross, Bathurst, 1898.
AOMcF - A.O. McFarland, Gosford.
HTBH - H.T.B. Harris, Wellington, N.S.W.
IB - Miss I. Bowden, Wentworth Falls.
AD - A. Dockrill, Lae, T.P.N.G.
FITZG. - R.D. FitzGerald, Deputy Surveyor-General of N.S.W., 1830-1892.
KM - Knowles Mair, Senior Botanist, Nat. Herbarium, Sydney.
RM - Ray Mowbray, Carlingford.
F - Dr. Fletcher, Sydney.
MEL - Melbourne Herbarium, Victoria.

KEY TO THE LOCALITIES

A	
Abercrombie Caves	34B
Apple Tree Flat	17E
B	
Back Yamma	20F
Baldry	14C
Beargamil	19A
Ben Bullen	30D
Bindogandri Mt.	20A
Botobolar	
Bridle Track	22D
Bumberry	20B
C	
Caloola	34C
Capertee	24A
Cargo	27A
Charlton	35A
Chifley Dam	29L
Clergate	22C
Cobbora	4B
Cookamidgera	20D
Cooyal	11F
Cudal	21B
Cudgegong	17B
Cullenbone	11C
Cullen Bullen	30B
Cumnock	15C
Curra Creek	15A
Curumbenya Range	14B
D	
Dripstone	9B
Dunedoo	5A
Duramana	28D
E	
Elong Elong	4A
Eucharina	16B
Eugowra	26A
Eurunderee	11D
F	
Fitzgerald's Mount	28B
Four Mile Creek	27B
G	
Gemalla	29G
Georges Plains	28C
Glanmire	29B
Gulf Stream	29K
Gulgong	11A
Guntawang	11B
H	
Hampton	36A
Hargreaves	16C
J	
Jenolan Caves	35D
K	
Kandos	
Kelgoola	
Kerr's Creek	
L	
Locksley	
Long Point Road	
Limekilns	
M	
Mandagery	
Manildra	
Meadow Flat	
Molong	
Mt. Buckaroo	
Mt. Canambro	
Mt. Canobolas	
Mt. Coricudgy	
Mt. Horrible	
Mt. Knowles	
Mt. Werong	
Mt. Wiagdon	
Mt. Wuuluman	
Mullamuddy	
Mullion Creek	
Munghorn	
Murga	
N	
Nangar Mt.	
Neurea	
Norway	

KEY TO THE LOCALITIES

N	
Nullo Mt.	18C
O	
Oberon	35C
Obley	8A
Olinda	18D
Ophir	22E
P	
Peak Hill	7A
Peel	29A
Peel Trig.	
Poretr's Retreat	41A
Portland	30A
R	
Rockley	34D
Rockley Mt.	34E
Rocks Creek	28A
Rylstone	18A
S	
Sodwalls	30C
Springside	27D
Summer Hill Creek	
Sunny Corner	29F
Store Creek	16A
T	
Tarana	29H
Trunkey Creek	34A
U	
Upper Meroo	17D
W	
Wattle Flat	23A
Wongarbon	9A
Woodstock	33A
Y	
Yamble	10B
Yeoval	14A
Yetholme	29C
Yetholme Trig.	29J

The following are named on the map:

Abercrombie River
Bathurst
Cowra
Dubbo
Forbes
Harvey Range
Lachlan River
Macquarie River
Mudgee
Narromine
Orange
Parkes
Talbragar River
Turon River
Wellington
Wyangala Dam

============

KEY TO LOCALITIES ON MAP

4A	Elong Elong
4B	Cobbora
5A	Dunedoo
7A	Peak Hill
8A	Obley
9A	Wongarbon
9B	Dripstone
9C	Mt. Wuuluman
10A	Yamble
11A	Gulgong
11B	Guntawang
11C	Cullenbone
11D	Eurunderee
11E	Mt. Buckaroo
11F	Cooyal
11G	Munghorn
14A	Yeoval
14B	Curumbenya Range
14C	Baldry
15A	Curra Creek
15B	Neurea
15C	Cumnock
16A	Store Creek
16B	Euchareena
16C	Hargreaves
17A	Mullamuddy
17B	Cudgegong
17C	Mt. Knowles
17D	Upper Meroo
17E	Apple Tree Creek
18A	Rylstone
18B	Kandos
18C	Nullo Mt.
18D	Olinda
18E	Mt. Coricudgy
18F	Kelgoola
19A	Beargamil
20A	Bindogandri Mt.
20B	Bumberry
20C	Manildra
20D	Cookamidgera
20E	Mt. Canambro
20F	Back Yamma
20G	Mandagery
21A	Molong
21B	Cudal
22A	Kerr's Creek
22B	Mullion Creek
22C	Clergate
22D	Bridle Track
22E	Ophir
23A	Wattle Flat
23B	Limekilns
23C	Mt. Horrible
23D	Mt. Wiagdon
24A	Capertee
26A	Eugowra
26B	Murga
26C	Nangar Mt.
27A	Cargo
27B	Four Mile Creek
27C	Mt. Canobolas
27D	Springside
28A	Rocks Creek
28B	Fitzgerald's Mt.
28C	Georges Plains
28D	Duramana
29A	Peel
29B	Glanmire
29C	Yetholme
29D	Locksley
29E	Meadow Flat
29F	Sunny Corner
29G	Gemalla
29H	Tarana

KEY TO LOCALITIES ON MAP

29J Yetholme Trig.
29K Gulf Stream
29L Chifley Dam
30A Portland
30B Cullen Bullen
30C Sodwalls
30D Ben Bullen
33A Woodstock
34A Trunkey Creek
34B Abercrombie Caves
34C Caloola
34D Rockley
34E Rockley Mt.
35A Charlton
35B Norway
35C Oberon
35D Jenolan Caves
36A Hampton
41A Porter's Retreat
41B Mt. Werong

============

1. *Thelymitra ixioides* Sw. "Dotted Sun Orchid"
Mt. Canobolas (JB), Yetholme Trig. (WB, 15-10-1961; WB & KI/KI, 4-11-1962), Yetholme (JB, 20-11-1961), Gulgong (B/NH, 9-1916), Caloola (KI, 11-11-1961), Munghorn (KI 9-1952; WB, 8-10-1961), Rockley Mt. (KI, 20-11-1960), Kerr's Ck. (GPA), Mullion Creek (WFG), Springside (WFG), Jenolan Caves (WB, 14-11-1958), Bathurst (WB, 6-10-1960; WJCR), Wyangala Dam (WB, 29-10-1960), Oberon (WB, 2-10-1958), Olinda (WB, 27-9-1960; KI, 14-10-1964), Portland (WB, 28-10-1961), Dubbo (WB, 1-10-1961), Mt. Horrible (KI, 18-11-1962), Rylstone (WB, 1-11-1962, unspotted), Bumberry (BW, 27-10-1963), Abercrombie Caves (BW, 26-10-1963), Curumbenya Ra. (BW, 17-10-1964), Gulf Stream (SC, 11-1966 & 11-1967).
Flowering period: September to December.

2. *Thelymitra truncata* Rogers
Yetholme Trig. (WB & KI/KI, 4-11-1962), Mt. Horrible (KI, 18-11-1962), Yetholme (WB, 11-1963).
Flowering period: October to November.

3. *Thelymitra irregularis* W.H. Nicholls "Crested Sun Orchid"
Chifley Dam (WB, 8-11-1964).
Flowering period: November.

4. *Thelymitra chasmogama* Rogers "Globe-Hood Sun Orchid"
Abercrombie Caves (WB, 26-10-1963), Bumberry (GPA, 10-1963).
Flowering period: October.

5. *Thelymitra aristata* Lindl. "Scented Sun Orchid"
Molong (Ross?), Wellington (EB/NH, 20-10-1886), Bumberry (Davis/NH. 11-1906), Trunkey Ck., (WB, 9-10-1961), Mudgee District (H), Yetholme Trig. (WB, 15-10-1961), Yetholme (JB, 2-11-1961), Orange (B/NH, 11-1906), Rockley Mt. (KI, 20-11-1960), Abercrombie Caves (KI, 18-10-1959; WB, 9-10-1961; BW, 26-10-1963), Dripstone (GPA/NH, 10-1945), Mullion Ck. (WFG), Springside (WFG, 19-11-1960), Wyangala Dam (WB, 29-10-1961), Bathurst (WB & KI, 14-11-1962), Kerr's Ck. (WB, 21-10-1962), Rocks Ck. (BW, 27-10-1963), Rockley (B/NH, 11-1906).
Flowering period: September to November.

6. *Thelymitra nuda* R.Br. "Plain Sun Orchid", "Pale Sun Orchid"
Abercrombie Caves (KM/NH, 20-10-1951), Mudgee District (Woolls), Wellington (EB, 10-1886), Harvey Ra. (GPA), Dubbo (WB, 1-10-1961; GPA), Gulgong (GPA), Dripstone (GPA/NH, 10-1945), Georges Plains (WB, 10-11-1964), Wyangala Dam (WB, 10-1961).
Flowering period: September to November.

7. *Thelymitra pauciflora* R.Br. "Slender Sun Orchid"
Bathurst (WB, 8-10-1961; WB & KI/KI, 4-11-1962), Guntawang ? (H), Rockley Mt. (KI, 20-11-1960; WB, 8-10-1961; AOMcF/KI, 15-11-1962), Wyangala Dam (WB, 29-10-1961), Olinda (WB, 10-10-1961), Abercrombie Caves (WB, 8-10-1961; AD & Curnow, 2-10-1955; BW, 26-10-1963), Yetholme Trig. (WB, 15-10-1961; WB & KI/KI, 4-11-1962), Mt. Horrible (KI, 18-11-1962), Tarana (IB, 10-1955), Curumbenya Ra. (BW, 23-10-1966), Eugowra (BW, 19-10-1966
Flowering period: September to December.
(Rupp, personal communication to Althofer, 26-9-1945, states: "It is so difficult to distinguish between forms of these two (*T. nuda* & *T. pauciflora*) that personally I think they might well be united"). The authors agree.

Thelymitra pauciflora R.Br. forma *alba*
Olinda (WB, 10-10-1961).
Flowering period: Spring.

Thelymitra carnea R.Br. "Pink Sun Orchid"
Olinda (WB, 6-10-1961), Bathurst (WB, 3-10-1961 & 3-10-1960), Rockley Mt. (JB, 20-11-1960; WB, 4-10-1961; AOMcF/KI, 23-10-1962), Abercrombie Caves (KM/NH, 21-10-1951; WFG, 4-11-1962; WB), Wyangala Dam (WB, 25-9-1961), Yetholme Trig. (WB & KI/KI, 4-11-1962), Bumberry (GPA/KI, 10-1963), Charlton (WB, 1-11-1962), Caloola (BW, 26-10-1963; WB).
Flowering period: September to November.
(*Thelymitra longifolia* Forst. "Common Sun Orchid".
Guntawang (H). "This specimen was probably *T. pauciflora* or *T. aristata*", according to Blackmore, loc. cit., although Rupp retained it in his 1948 list).

9. *Diuris punctata* Sm. "Lilac Orchid"
var. *punctata* forma *blakneyae* F.M. Bailey
Rylstone (WB, 1-11-1962; WB/LIC, 15-11-1962).
var. *punctata* forma *striata* Clemesha
Forbes (Sheaffe).
var. *longissima* Benth. (including *D. cuneata* FitzG.)
Mudgee (Taylor/MEL, 1870; Roth/KI, 20-11-1965), Wongarbon (GPA/KI, 12-1956; WB/KI, 20-10-1964; WB, 20-10-1964), Manildra (B/NH, 11-1906), Molong (B/NH, 11-1906), Guntawang (H).
The following collections have been made, but the correct variety cannot be determined: Mudgee (Woolls), Mudgee District "white form" (H), Dripstone (GPA, 1938), Bathurst (WJCR), Cudal (IB, 11-1955).
Flowering period: September to December.

10. *Diuris sheaffiana* FitzG.
Forbes (Sheaffe).
Flowering period: October.

11. *Diuris tricolor* FitzG. (including *D. colemaniae* Rupp)
Guntawang (H;HD/NH, 2-10-187?), Gulgong (H), Cullenbone (H), Mt. Knowles (H), Cooyal (H), Kerr's Ck. (GPA/NH, 10-1947), Narromine (GPA, 9-1963), Peak Hill (B/NH, 10-1906), Dubbo (B/NH, 10-1907; WB, 1-10-1961), Wongarbon (GPA;WB, 29-9-1961), Dripstone (GPA, 9-1963).
Flowering period: August to November.

12. *Diuris maculata* Sm. "Leopard Orchid, Spotted Double Tail, Yam".
Mudgee District (H), Bathurst (KI, 5-10-1959; May/NH, 1929; WJCR), Gulf Stream (KI, 10-1943), Cudal (WFB/NH, 10-1906), Olinda (WB, 7-10-1961), Bindogandri Mt. (KI, 16-9-1961; BW, 9-9-1963), Yetholme Trig. (KI, 1-10-1961; WB, 12-10-1961), Abercrombie Caves (WB, 10-10-1961; KI, 18-10-1959 & 2-10-1960; AD & Curnow, 2-10-1955), Rockley Mt. (WB, 10-1961; AOMcF/KI, 23-10-1962), Cobbora (Smith/NH, 1939), Dripstone (GPA, 10-1947), Kerr's Ck. (GPA, 10-1947), Mullion Ck. (?) (WFG). Springside (WFG/KI, 20-10-1960), Wyangala Dam (WB, 24-9-1961), Bathurst (WB, 7-10-1961), Wellington (HTBH/KI, 16-9-1962), Fitzgerald's Mt. (KI, 18-10-1962; AOMcF/KI, 17-10-1962), Tarana (IB, 10-1955), Sunny Corner (KI, 2-11-1964), Georges Plains (BW, 26-10-1963), Mandagery (WB, 22-9-1963), Summer Hill Ck. (WFG/KI, 23-9-1962), Curumbenya Range (BW, 25-9-1966), Eugowra (WFG & Clemesha, 9-1962), Nangar (BW, 9-10-1966), Harvey Range (HTBH/KI, 1 -10-1943).
Flowering period: September to November.

13. *Diuris brevissima* FitzG. ex Nicholls
Dripstone (GPA, 8-1945 & 10-1947), Kerr's Ck. (GPA & Rupp, 10-1950), Rockley Mt. (KI, 10-1963), Wyangala Dam (WB, 17-9-1961), Dubbo (WB, 29-9-1961).
Flowering period: August to October.
Possibly a form of *D. maculata*.

14. *Diuris semilunulata* Messmer
Springside ? (WFG, 10-1962)*
Flowering period: October.
*(Placed by Dockrill under *D. maculata*).
Possibly a form of *D. maculata*.

15. *Diuris flavopurpurea* Messmer *
Harvey Range (Maiden/NH, 9-1898; GPA/NH, 9-1949), Molong (WFB/NH, 9-1932), Dripstone (GPA/NH, 10-1945), Dubbo (WB, 1-10-1961; GPA, 9-1947 & GPA/NH, 9-1952), Guntawang (GPA, 9-1947), Wyangala Dam (WB, 24-9-1961), Gulgong (GPA, 9-1947), Eugowra (WFG, 22-9-1963), Georges Plains (BW, 26-10-1963).
Flowering period: September to October.
* "Maybe of hybrid origin, with *D. maculata* as one parent," J.H. Willis, 6-11-1961.

16. *Diuris lineata* Messmer
    Yamble (GPA, 9-1947), Dripstone (GPA/NH, 10-1945 & GPA, 9-1947), Dubbo (WB, 1-10-1961), Guntawang (GPA/NH, 9-10-1947).
    Flowering period: September to October.
    Possibly a form of *D. platichila* FitzG.
17. *Diuris polymorpha* Messmer
    Dripstone (GPA/NH, 10-1945), Mullion Ck. (GPA, 10-1963?), Dubbo (GPA, 9-1947 & GPA/NH, 10-1947), Upper Abercrombie R. (WB, 29-10-1962).
    Flowering period: September to October.
    Possibly a hybrid with *D. pedunculata* as one parent.
18. *Diuris althoferi* Rupp (including *D. citrina* Nicholls
    Yamble (GPA, 9-1964), 10-1947; WB, 26-9-1946), Dubbo (GPA; WB, 1-10-1961 & 29-9-1961), Guntawang (GPA, 9-1947 & 10-1947; WB, 26-9-1964), Wellington (WB, 27-9-1964), Munghorn (JB, 2-10-1960), Peak Hill (WFB), Dripstone (GPA/NH, 10-1945 & GPA/MEL, 10-1947).
    Flowering period: September to October.
    Possibly a form of *D. platichila* FitzG.).
19. *Diuris cucullata* Rupp
    Yamble (GPA, 9-1947), Gulgong (GPA, 10-1945), Kerr's Ck. (WB, 20-10-1962).
    Flowering period: September to October.
    Possibly a form of *D. platichila* FitzG.
20. *Diuris cuneilabris* Rupp
    Kerr's Ck. (GPA, 10-1947), Yamble (GPA).
    Flowering period: October.
    Possibly a form of *D. platichila* FitzG.
21. *Diuris platichila* FitzG.
    Kerr's Ck. (GPA & Rupp/NH, 10-1950; WB, 21-10-1963), Dripstone (GPA/NH, 10-1945), Dubbo (WB, 1-9-1961), Wyangala Dam (WB, 17-9-1961).
    Flowering period: September to October.
22. *Diuris palachila* Rogers "Broad Lipped Double Tail" or "Donkey Orchid".
    Olinda (WB, 8-10-1961; KI, 8-10-1961), Bathurst (WB, 6-11-1961), Cudal (WFB, 10-1904), Molong (WFB/NH, 9-1932), Gulgong (GPA, 10-1945), Wellington (HTBH/KI, 16-9-1962), Tarana (?) (IB, 10-1955), Springside (WFG, 10-1962), Gudgegong (KI, 17-10-1953 & 9-10-1958), Apple Tree Flat (KI, 17-9-1949), Dubbo (WB, 1-10-1961), Kandos (WB, 8-10-1969 & 9-10-1958), Rockley Mt. (WB, 10-10-1961), Dripstone (GPA/NH, 10-1945), Guntawang (GPA, 9-1947), Wattle Flat (WB, 6-10-1961), Peel (WB, 6-10-1961), Munghorn (KI, 15-9-1965), Rylstone (WB, 8-10-1961; KI, 9-10-1958).
    Flowering period: September to November.
    (See D.J. McGillivray in Supplement to "Rupp: Orchids of N.S.W." Facsimile Edition 1969 for comment on this species.)
    Some, at least, of the above collections are probably forms of *D. platichila* FitzG. BW.
23. *Diuris bracteata* FitzG.
    Dripstone ? (GPA, 9-1966?)/
    Flowering period: September.
    ("Irregular growth form of *D. aurea* or *D. sulphurea*" WB, 3-2-1967).
24. *Diuris sulphurea* R.Br. "Tiger Orchid"
    (Including *D. latifolia* Rupp).
    Mudgee (H), Bathurst (WB, 15-10-1961; WFCR; WB & KI/KI, 4-11-1962), Mt. Canobolas (WFG), Hargraves (KI, 2-10-1950), Munghorn (KI, 20-10-1960), Rockley Mt. (IB, 11-1955; KI, 20-11-1960; AOMcF/KI, 15-11-1962), Ben Bullen (KI, 15-11-1958), Gemalla (WB, 3-11-1961), Yetholme (JB, 20-11-1961), Portland (WB, 11-11-1961), West Sunny Corner (B/NH, 11-1899), Georges Plains (B/NH, 11-1906), Norway (WFB & Ludowici/NH, 10-1940), Oberon (WB, 15-10-1960), Dripstone (GPA, 10-1945), Springside (WFG, 30-11-1958; KI, 19-11-1960), Mullion Ck. (WFG, 23-11-1958), Cooyal (KI, 14-11-1953), Duramana (WB, 31-10-1961), Mt. Wiagdon (AOMcF/KI, 31-10-1962), Turon R. (AOMcF/KI, 1-11-1962), Mt. Horrible (KI, 18-11-1962), Capertree & Ilford (KI, 28-10-1963), Gulf Stream (KI, 29-11-1965), Rocks Ck. (KI & BW/BW, 27-10-1963), Tarana (IB, 11-1955).
    Flowering period: September to November.
25. *Diuris aurea* Sm. "Golden Butterfly"
    Bathurst (WB, 27-10-1960; WJCR), Mudgee (H), Yamble (GPA, 9-1947), Dripstone (WB, 1-10-1961; GPA/NH, 10-1945), Rockley Mt. (AOMcF/KI, 15-11-1962), Duramana (WB, 24-10-1964), Curumbenya Range (BW/KI, 23-10-1966; BW, 23-10-1966 & 10-1964).
    Flowering period: August to November.

26. Diuris abbreviata F. Muell. ex Benth.

Mudgee (H), Dripstone (GPA), Guntawang (H), Bathurst (Mason 2-10-1956), Glanmire ? (WFG, 2-12-1964).

Flowering period: August to November.

Possibly a form of D. platichila FitzG.

27. Diuris pedunculata R.Br. "Golden Moths"

Macquarie R. (AC, 1822), Molong (WB, 7-11-1961), Wattle Flat to Limekilns (EFC/NH, 12-10-1950), Kerr's Ck. (WB, 7-11-1961), Mudgee District (H), Abercrombie Caves (KI, 2-10-1960; AD & Curnow, 2-10-1955), Meadow Flat, (KI, 20-10-1958), Oberon (WB, 15-10-1958), Jenolan Caves (WFB/NH, 11-1899), Orange (Caro/NH, 11-1906), Clergate (GPA), Springside (WFG/KI, 9-10-1960; WFG/BW, 16-10-1963; WFG, 19-11-1960), Bathurst (WB, 6-11-1961; WJCR), Tarana (IB, 10-1955), Mt. Horrible (Stark/KI, 20-9-1964), Caloola KI & BW/BW, 26-10-1963).

Flowering period: August to November.

28. Diuris pedunculata R.Br. var. gigantea Nicholls

Mullion Ck. (KI, 3-11-1960), Upper Abercrombie River (WB, 29-10-1962).

Flowering period: October to November.

("An apparently unstable variant responding to favourable growing conditions") WB.

29. Diuris maculosissima Rupp

Kerr's Ck. (GPA, 10-1947), Dripstone (GPA, 10-1947).

Flowering period: October.

Possibly a hybrid with D. maculata as one parent.

30. Orthoceras strictum R.Br. "Straight Horn", "Horned" or "Crow Orchid"

Mullion Ck. (GPA), Springside (WFG/KI, 1-1961), Gulgong (GPA/KI, 12-1963).

Flowering period: November to February.

31. Microtis unifolia (Forst.) Reichb.f. "Common Onion Orchid"

Mudgee District (H), Abercrombie R. (WB, 28-1-1962), Abercrombie Caves (WFG; WB, 9-10-1961; KI, 26-10-1963), Bathurst (WB, 26-11-1961), Wyangala Dam (WB, 29-10-1961), Dubbo (GPA; WB, 1-10-1961), Gemalla (WB, 11-11-1961), Manildra (B/NH, 11-1906), Summer Hill Ck. (KI, 25-11-1961), Harvey Ra. (GPA;B/NH, 11-1905), Rockley Mt. (WB, 26-11-1961; KI, 20-11-1960), Peel (KI, 13-11-1942), Dripstone (GPA, 10-1945), Four Mile Ck. (WFG/KI, 10-12-1961), Yetholme Trig. (KI, 30-11-1963), Gulf Stream (KI, 29-11-1964; KI & BW/BW, 11-2-1967; KI, 15-11-1965; KI & WFG, 1-2-1970), Back Yamma (BW, 31-10-1964).

Flowering period: October to January.

32. Microtis parviflora R.Br. "Slender Onion Orchid"

Mudgee District (H), Bathurst (WB, 26-11-1961), Munghorn (RM, 23-10-1954), Rockley Mt. (WB, 26-11-1961), Dripstone (GPA, 12-1947), Mullion Ck. (WFG, 25-11-1961), Springside (WFG), Abercrombie Caves (WFG/KI, 27-11-1960), Abercrombie R. (WB, 28-1-1962), Tarana (IB, 10-1955), Rocks Ck. (KI, 27-10-1963).

Flowering period: October to January.

33. Prasophyllum flavum R.Br. "Yellow Leek Orchid"

Mudgee District (Woolls), Gulgong (H), Cooyal (H), Dripstone (GPA), Olinda (WB, 16-2-1963, dying), Gulf Stream (SC, 11-1967).

Flowering period: November to January.

34. Prasophyllum elatum R.Br. "Tall Leek Orchid"

Mudgee (Woolls), Dripstone (GPA), Harvey Ra. (GPA), Jenolan Caves (WB, 14-11-1958).

Flowering period: August to October.

35. Prasophyllum gracile Rogers "Slender Leek Orchid"

Peak Hill (B/NH, 10-1906), Molong (Ross/NH, 6-10-?), Mudgee (Collie); Bennet/KI, 14-10-1952; Roth/KI, 12-10-1966), Gulgong (GPA/NH, 10-1945), Yamble (GPA), Dripstone (GPA, 1945), Guntawang (H).

Flowering period: Late Spring.

36. Prasophyllum brevilabre Hook.f. "Short-lipped Leek Orchid"

Mudgee District (H), Porter's Retreat (WB, 28-1-1962 & 25-3-1962), Yetholme (JB, 20-11-1961), Gulf Stream (KI, 11-2-1967; WB, 2-12-1962 & 3-11-1963), Mt. Werong (WB/KI, 28-1-1962), Jenolan Caves (WFB/NH, 12-1899), Dripstone (GPA), Yetholme Trig. (KI, 22-11-1965 & 20-11-1963; WB, 17-11-1961).

Flowering period: November to March.

37. Prasophyllum odoratum Rogers "Scented Leek Orchid"

Mudgee District (Woolls), Summer Hill Ck. (WB, 11-1961), Manildra (B/NH, 11-1906), Jenolan Caves (WFB/NH, 12-1899), Dripstone (GPA, 9-1945), Neurea (GPA), Cumnock (GPA),

Springside (WFG, 19-11-1960), Olinda (WB/KI, 16-11-1962; WB, 9-11-1962), Mullion Ck. (WFG, 3-11-1963; GPA, 22-11-1965), Curumbenya Ra. (BW, 23-10-1966), Wellington (WB, 27-9-1964), Yetholme (WB, 3-12-1963).
Flowering period: August to January, according to climate.

38. Prasophyllum patens R.Br. "Pale Leek Orchid"
Mudgee District (H), Cumnock (GPA, 10-1947), Gulgong (GPA), Dubbo (GPA/NH, 9-1952; WB, 1-10-1961), Yamble (GPA/NH, 10-1947), Peak Hill (B, 10-1906), Beargamil (GPA, 1-10-1964).
Flowering Period: September to December.

39. Prasophyllum fuscum R.Br. "Tawny Leek Orchid"
Mudgee District (Woolls), Dripstone (GPA), Bathurst (WJCR).
Flowering Period: Spring to early Summer.

40. Prasophyllum longisepalum FitzG.
Dripstone ? (GPA, 4-1946 - past maturity).
Flowering Period: Autumn.

41. Prasophyllum rufum R.Br. "Red Leek Orchid"
Mudgee District (H), Dripstone (GPA), Gulf Stream (BW & KI/KI, 11-2-1967), Abercrombie Caves (WFG/KI, 3-2-1963; KI, 30-4-1961 - past maturity), Yetholme Trig. (WB, 25-1-1962; KI, 29-1-1962), Olinda (WB, 16-2-1963 & 17-2-1962), Kandos (WB, 16-2-1963).
Flowering Period: January to March.

42. Prasophyllum nigricans R.Br. "Dark Leek Orchid"
Dripstone (GPA, 4-1946 & GPA/NH, 2-1948), Euchareena (GPA, 3-1950).
Flowering Period: January to April.

43. Prasophyllum fusco-viride Reader "Dusky Leek Orchid"
Dripstone (GPA, 3-1948).
Flowering Period: March.

44. Prasophyllum archeri Hook.f. "Hairy Leek Orchid"
Olinda (WB, 17-2-1962 & 16-2-1963; KI, 12-3-1962), Wyangala Dam (WB, 20-5-1961 & 15-2-1962), Yetholme Trig. (WB/KI, 29-1-1962 & WB, 25-1-1962), Gulf Stream (D. Bland/KI, 11-2-1967).
Flowering Period: January to May.

45. Prasophyllum obovatum Rupp
Munghorn ? (KI, 30-7-1955 - past maturity).
Flowering Period: Winter.

46. Caleana major R.Br. "Bee, Wasp or Duck Orchid"
Mt. Werong (Cambage/NH, 4-12-1911), Rockley Mt. (KI, 20-11-1960), Olinda (WB, 20-11-1960), Mt. Horrible (WB & KI/KI, 18-11-1962, in bud), Rylstone (WB, 1-11-1962).
Flowering Period: October to December.

47. Caleana minor R.Br. "Small Duck Orchid"
Guntawang (H), Rockley Mt. (WFG, 19-12-1962; WB, 12-11-1961), Four Mile Ck. (WFG, 18-11-1962), Olinda (WB, 17-2-1962 & 16-2-1963), Yetholme Trig. (WB, 18-11-1961; KI, 29-1-1962; WFG/NH, 4-2-1962), Munghorn (KI, 10-12-1962), Murga (IB, 11-1955), Botobolar (N. Roth./KI, 20-11-1965).
Flowering Period: Spring and Summer.

48. Spiculaea huntiana (F.Muell.) Schltr. "Elbow Orchid"
Porter's Retreat (WB/KI, 25-3-1962; WB, 10-2-1962), Mt. Canobolas (WFG/KI, 25-12-1962 & 10-2-1963), Oberon (WB, 10-2-1963).
Flowering Period: November to March.

49. Chiloglottis reflexa (Labill.) Druce "Autumn Bird Orchid"
Mt. Canobolas (WFG/KI, 18-3-1961 & WFG, 18-2-1962), Porter's Retreat (WB/KI, 25-3-1962), Mt. Horrible (WB, 17-4-1962; Stark/KI, 16-3-1963), Tarana (IB, 4-1961 - past maturity), Gulf Stream (WB, 7-4-1963; KI & BW/BW, 11-2-1967), Hampton (SC, 2-1968).
Flowering Period: February to April.

50. Chiloglottis trapeziformis FitzG. "Broadlip Bird Orchid"
Guntawang (H; KI, 17-9-1964), Cooyal (H), Mullamuddy (H), Cullenbone (H), Munghorn (JB/KI, 1-10-1960), Porter's Retreat (WB, 18-8-1962), Nangar (BW, 9-10-1964), Harvey Ra. (BW, 11-10-1966).
Flowering Period: August to October.

51. Chiloglottis formicifera FitzG. "Ant Orchid"
Cooyal (H), Olinda (KI, JB & WB, 8-10-1961), Mt. Wuuluman (GPA), Dripstone (GPA/NH, 10-1945), Harvey Ra. (BW, 11-10-1966; BW/KI, 11-10-1966).
Flowering Period: September and October.

52. Chiloglottis gunnii Lindl. "Large or Common Bird Orchid"
Mt. Werong (J & C/NH, 23-10-1957), Mt. Canobolas (JB, 11-1955; WFG/KI, & NH, 1-11-1959; KI & BW/BW, 10-11-1963), Gulf Stream KI, 4-4-1964 - fruiting; WB, 11-1963), Springside (WFG, 10-1964 - in bud; 12-1966), Hampton (SC, 2-1968 - past maturity).
Flowering Period: October to January.

53. Acianthus fornicatus R.Br. "Pixie-Caps"
Wyangala Dam (WB, 25-7-1962), Porter's Retreat (WB, 25-3-1962), Cooyal (H), Mudgee District (H), Munghorn (KI, 30-7-1955 & KI/New England Uni., 9-6-1952), Upper Meroo (KI, 13-8-1950), Olinda (KI, 6-8-1961; WB, 20-6-1961), Molong (Rupp/NH, 8-1916), Dripstone (GPA, 8-1945), Harvey Ra. (GPA/NH, 7-1948), Mt. Canobolas (WFG), Mullion Ck. (WFG), Four Mile Ck. (WFG & KI, 9-10-1960), Summer Hill Ck. (WFG/KI, 13-9-1959), Mt. Horrible ? (WFG, 20-5-1962), Bumberry (BW, 27-7-1963).
Flowering Period: March to October.

54. Acianthus exsertus R.Br. "Gnat or Mosquito Orchid"
Jenolan Caves (WFB/NH, 5-1900), Mudgee (KI, 12-5-1952), Olinda (GPA/NH, 5-1952), Gulf Stream (KI, 4-4-1964).
Flowering Period: April to June.

55. Acianthus reniformis (R.Br.) Schltr. "Mosquito Orchid"
Guntawang (H), Wyangala Dam (WB/KI, 17-9-1961), Cudal (WFB/NH, 10-1906), Jenolan Caves (WFB/NH, 8-1899), Munghorn (KI, 1-8-1955), Dripstone (GPA/NH, 10-1945), Four Mile Ck. (WFG & KI, 9-10-1960 & 19-11-1960), Mt. Canobolas (WFG), Mullion Ck. (WFG), Summer Hill Ck. (WFG/KI, 13-9-1959), Abercrombie Caves (AD & Curnow, 20-10-1955; KI, 26-10-1963), Rocks Ck. (KI, 27-10-1963), Duramana (WB/KI, 18-10-1964), Nangar (BW,9-10-1966), Curumbenya Ra. (BW, 25-9-1966), Eugowra (BW, 7-10-1963), Bindogandri Mt. (BW, 9-9-1963).
Flowering Period: Late May to October (rarely November).

56. Calochilus campestris R.Br. "Peaked Beard Orchid"
Guntawang (H), Olinda (WB, 8-10-1961; KI, 8-10-1961), Dripstone (GPA/NH, 10-1945), Mullion Ck. ? (WFG), Springside (WFG/KI, 30-11-1960), Gulf Stream (WB, 2-12-1962), Caloola (KI, 26-10-1963), Rockley Mt. (WB, 10-1962).
Flowering Period: September to December.

57. Calochilus saprophyticus Rogers "Leafless or Pale Beard Orchid"
Gulf Stream (WB, 2-12-1962).
Flowering Period: December.
"Growing in decomposing sawdust heap at sawmill". WB

58. Calochilus robertsonii Benth. "Beardies", "Old Man's Beard"
Abercrombie Caves (KM/NH, 21-10-1951; WB, 9-10-1961), Wyangala Dam (WB, 2-10-1961), Yetholme Trig. (WB, 23-11-1961 & 3-12-1961), Dripstone (GPA, 9-1945), Harvey Ra. (GPA, 9-1951; HTBH/KI, 1-10-1962), Rockley (WB, 10-1961), Bathurst (WB & KI/KI, 4-11-1962), Rylstone (WB, 1-11-1962), Beargamil (WFG, 10-1964), Guntawang (KI, 26-9-1964), Bindogandri Mt. (KI, 27-9-1965), Tarana (IB, 10-1955), Curumbenya Ra. (BW, 23-10-1966), Gulf Stream (KI & WFG, 1-2-1970).
Flowering Period: September to February.

59. Calochilus paludosus R.Br. "Red Beards"
Breakfast Creek, Rylstone (WB, 10-1962), Mullion Ck. ? (WFG, 3-11-1963).
Flowering Period: September to December.

60. Calochilus gracillimus Rupp
Murga (IB, 11-1955).
Flowering Period: Mid-summer.

61. Eriochilus cucullatus (Labill.) Reichb.f. "Autumn Wings", "Parson's Bands"
Mudgee District (Collie/NH;H), Mt. Horrible (WB, 11-2-1962; Stark/KI, 1-3-1963), Bathurst (WB, 15-5-1961; KI, 12-4-1963; WJCR), Trunkey Ck. (WB, 23-3-1961), Olinda (KI, 12-3-1962; WB, 17-2-1962), Abercrombie Caves (KI, 8-4-1962), Abercrombie R. (WB, 25-3-1961), Rockley Mt. (Dibley/KI, 11-3-1962; WB, 23-3-1961), Jenolan Caves (WFB/NH, 1-2-1900), Yetholme Trig. (WB, 7-4-1962; KI, 7-4-1962; BW, 7-4-1963), Dripstone (GPA, 4-1946), Mullion Creek (GPA), Oberon Mt. (KI, 18-3-1964), Springside (WFG, 18-2-1962), Gulf Stream (KI, 24-2-1963 & 13-4-1963).
Flowering Period: January to May.

62. Lyperanthus suaveolens R.Br. "Blady Leaf" "Red Beak Orchid"
Guntawang (H), Olinda (GPA), Mullion Ck. (GPA, 10-1963 & 22-11-1965), Rockley Mt. (GPA, 16-8-1964 - in bud; WB, 1-10-1964), Yetholme Trig. (KI, 1-9-1966 - in leaf).
Flowering Period: August to November.

63. *Caladenia reticulata* FitzG.
(Includes *C. fitzgeraldii* Rupp).
Mudgee (Woolls), Guntawang (H), Dripstone (GPA/NH, 9-10-1945), Mt. Canobolas (WB/BW, 11-1963; WB, 11-1963), Abercrombie Caves (AD & Curnow, 2-10-1955), Eugowra (WFG & SC, 9-1962; WFG/KI, 22-9-1963; WB, 21-9-1963; BW, 3-10-1966).
Flowering Period: Late August to October.

64. *Caladenia patersonii* R.Br. var. *patersonii* "Common Spider Orchid " (Victoria)
Mudgee District (Woolls), Dripstone (GPA, 1936), Eugowra (WFG, 22-9-1963; KI, 3-10-1964), Wellington (GPA, 19-10-1963).
Flowering Period: September to October.
The common name is hardly applicable in N.S.W. BW.

Caladenia patersonii R.Br. var. *arenaria* (FitzG.) Nicholls "Grey Spider Orchid"
(= a grey flowered form of *C. patersonii* R.Br.
Guntawang (H), Mudgee(GPA).
Flowering Period: October to November.

Caladenia patersonii R.Br. var. *concolor* (FitzG.) J.H. Willis "Granite Spider Orchid"
et A.B. Court
Eugowra (WFG, 22-9-1963).
Flowering Period: September.

65. *Caladenia dilatata* R.Br. var. *dilatata* "Green", "Combed" or "Fringed Spider Orchid"
Molong (Ross), Kerr's Ck. (EFC/NH, 29-10-1958; WB, 21-10-1962), Mudgee District (H), Wellington (EB/NH, 10-1866; GPA), Abercrombie Caves (WB, 10-1961; AD & Curnow, 2-10-1955), Rockley Mt. (Dibley/KI, 10-1960; KI, 20-11-1960; WB, 10-10-1961; AOMcF/KI, 15-11-1962; IB, 11-1955), Peel Trig. (KI, 28-9-1942), Four Mile Ck. (KI, 9-10-1960), Jenolan Caves (WFB/NH, 12-1899), Cudal (WFB/NH, 10-1906), Orange (Caro/NH, 3-10-1906), Harvey Ra. (GPA; BW, 11-10-1966), Dripstone (GPA/NH, 10-1945 & 9-1947), Bathurst (WB, 8-10-1961; WB & KI/KI, 4-11-1962; WJCR), Yetholme Trig. (WB, 10-11-1961), Gemalla (WB, 17-11-1961), Springside (WFG/KI, 2-10-1960; KI, 19-11-1960), Charlton (WB, 1-11-1962), Tarana (Perry, 10-1954; IB, 10-1955), Bindogandri Mt. (BW/KI, 25-10-1963), Curumbenya Ra. (BW, 23-10-1966).
Flowering Period: September to December.

Caladenia dilatata R.Br. var. *concinna* Rupp
Kerr's Ck. (GPA & Rupp, 10-1950), Eugowra (WFG, 22-9-1963; WB, 28-9-1963; WFG/BW, 20-9-1964 & 10-1963).
Flowering Period: August to October.

66. *Caladenia clavigera* A. Cunn. ex Lindl. "Clubbed Spider Orchid"
Mudgee? (Collie/NH), Dripstone (GPA, 8-1945), Yetholme Trig. (WB, 1-11-1961 & WB/KI, 10-11-1961; WB & KI/KI, 4-11-1962; WB/BW, 11-1963), Tarana (IB/NH, 11-1955), Mullion Ck. (JB, 11-1961), Springside (WFG/KI, 1-10-1962), Kerr's Ck. (WB, 21-10-1962).
Flowering Period: August to November.

Caladenia filamentosa R.Br. "Daddy Long Legs"
Abercrombie Caves (Cooper/NH, 21-10-1951), Forbes (HD/NH), Guntawang (H), Mudgee (H & F/NH; Woolls?; Collie/NH), Dripstone (GPA, 9-1945 & GPA/NH, 10-1945), Harvey Ra. (GPA, 9-1951 & GPA/NH, 10-1951), Beargamil (GPA, 10-1964), Duramana (WB, 18-10-1964; KI/BW, 24-10-1964; KI, 24-10-1964; WB, 25-10-1964).
Flowering Period: August to October.

68. *Caladenia carnea* R.Br. var. *carnea* "Pinkies"
Mudgee District (H;KI, 16-8-1952), Trunkey Ck. (WB, 29-9-1961), Wellington (WB, 1-10-1961; IB, 8-1949; HTBH/KI, 16-9-1962), Olinda (WB, 8-10-1961), Molong (WFB/NH, 10-1932; WB, 3-9-1961), Murga (WFG), Rockley Mt. (WB, 10-10-1961 & 23-10-1962), Abercrombie Caves KI, 18-10-1959 & 2-10-1960; WB, 29-9-1961; AD & Curnow, 2-10-1955), Bindogandri Mt. (KI, 16-9-1961; IB, 8-1949; HTBH/KI, 16-9-1962; BW, 9-9-1963), Four Mile Ck. (WFG & KI, 9-10-1960), Gulgong (GPA, 10-1945), Yetholme Trig. (KI, 1-10-1961; WB, 16-10-1961; Southwell, 8-9-1962; WB & KI/KI, 4-11-1962), Munghorn (KI, 27-9-1952), Dubbo (GPA;WB, 1-9-1961), Harvey Ra. (GPA, 9-1951; HTBH/KI, 1-10-1962;BW, 11-10-1966), Dripstone (GPA/NH, 9-1945; IB & GPA, 8-1949), Springside (WFG), Mullion Ck. (WFG, 1-10-1961; KI, 23-9-1962), Mt. Canobolas (WFG, 22-10-1960), Kerr's Ck. (GPA & Rupp, 10-1950), Bathurst (WB, 8-10-1961), Jenolan Caves (KI, 20-10-1962), Eugowra (WFG & SC, 9-1962), Eurunderee (Roth, 12-10-1966), Mandagery (BW, 22-9-1963), Curumbenya Ra. (BW, 23-10-1966), Summer Hill Ck. (WFG/KI, 14-10-1962).
Flowering Period: August to November.

Caladenia carnea R.Br. var. attenuata Brinsley
Duramana (WB, KI, BW, P. Althofer/WB, 28-10-1964).
Flowering Period: October.
var. minor (Hook.f.) Hatch
Parkes (EFC/NH, 9-1947), Harvey Ra. (EFC/NH, 2-10-1951), Munghorn (JB, 10-1960), Rockley Mt. (WB, 23-10-1962).
Flowering Period: September and October.
var. gigantea Rogers
Neurea (GPA, 9-1963).
Flowering Period: July to October.

69. Caladenia alba R.Br. "White Caladenia"
Cooyal (H)*, Oberon (WB), Olinda (WB, 23-8-1959), Mudgee (GPA).
Flowering Period: July to October.
*Probably Caladenia dimorpha. WB.

70. Caladenia congesta R.Br. "Black Tongue Caladenia"
Mudgee ? (F/NH), Yetholme Trig. (Brenton & KI/KI, 12-11-1961; WB, 2-12-1961; WB & KI/KI, 4-11-1962; WB/BW, 11-1963; WB, 13-11-1961), Cudal (WFB/NH, 11-1907), Tarana (IB/NH, 11-1955), Bathurst (WJCR), Mt. Canobolas (WFG, .2-1962), Mullion Ck. (WFG, 3-11-1963; GPA, 22-11-1965).
Flowering Period: Late spring and summer.

71. Caladenia dimorpha FitzG.
Bathurst (Stephenson/NH; WB, 10-10-1961; WJCR; WB & KI/KI, 4-11-1962), Bridle Track (AOMcF/KI, 18-11-1962), Hargraves (KI, 29-10-1950), Rockley Mt. (Dibley/KI, 10-1960; IB, 11-1955; KI, 20-11-1960; WB, 14-10-1961), Munghorn (KI, 24-10-1960; JB, 2-10-1960), Trunkey Ck. (B/NH, 11-1918), Abercrombie Caves (WB, 8-10-1961), Tarana (JB & IB, 14-10-1959; IB, 10-1955), Mullion Ck. (JB, 11-1961; GPA, 22-11-1965), Cumnock (GPA/NH, 10-1947), Four Mile Ck. (WFG, 23-10-1960), Mt. Werong (WFB & Ludowici, 10-1940), Fitzgerald's Mount (KI, 18-10-1962; AOMcF/KI, 17-10-1962), Chifley Dam (AOMcF/KI, 10-1962), Mt. Horrible (KI, 18-11-1962), Summer Hill Ck. (WFG/KI, 14-10-1962), Sunny Corner (KI, 2-11-1964), George's Plains (KI & BW/BW, 26-10-1963), Gulf Stream (SC, 11-1966 & 11-1967), Yetholme (JB, 20-11-1961), Yetholme Trig. (WB, 20-10-1961), Charlton (AOMcF/KI, 10-1962).
Flowering Period: October and November.

72. Caladenia angustata Lindl. "Scented" or "Slender Caladenia", "Polecats"
Trunkey Ck. (B/NH, 11-1918), Munghorn (KI, 9-1952 & 7-10-1961; WB, 8-10-1961; JB, 2-10-1960), Springside (WFG/KI, 10-1960; KI, 19-11-1960), Mt. Werong (WFB/NH, 27-10-1940), Oberon (WB, 8-10-1958), Gulgong (GPA/NH, 10-1945), Neurea (GPA), Harvey Ra. (GPA), Four Mile Ck. (WFG, 13-11-1960), Mt. Canobolas (WFG), Kerr's Ck. (GPA & Rupp, 10-1950), Abercrombie Caves (AD & Curnow, 2-10-1955; KI & BW/BW, 26-10-1963), Tarana (IB, 10-1955), Rylstone (WB, 1-11-1962), Mt. Horrible (WB, 18-11-1962), Mullion Ck. (GPA, 22-11-1965), Gulf Stream (K. Giles & KI, 2-12-1964), Woodstock (WB, 29-9-1963), Caloola (WB, 27-10-1963).
Flowering Period: Late September to December.

73. Caladenia cucullata FitzG. "Hooded Caladenia"
Molong (Ross), Wyangala Dam (WB, 27-10-1961), Gemalla (WB, 10-11-1961), Mullion Ck. (EFC/NH, 28-10-1957; JB, 11-1961; GPA, 22-11-1965), Abercrombie Caves (WB, 9-10-1961; KI & BW/BW, 26-10-1963), Rockley Mt. (Dibley/KI, 10-1960; KI, 20-11-1960), Cumnock (GPA /NH, 11-1947), Yetholme Trig. (WB, 10-11-1961; KI, 12-11-1961; WB & KI, 4-11-1962), Mt. Canobolas ? (WFG), Guntawang (HO, Cooyal (H), Bathurst (WB & KI/KI, 4-11-1962), Tarana (IB, 10-1955), Kerr's Ck. (WB, 21-10-1962), Neurea (GPA/KI, 10-1963), Bumberry (KI, 14-10-1964; BW, 27-10-1963), Curumbenya Range (BW, 23-10-1966; BW/KI, 23-10-1966).
Flowering Period: October to November.

74. Caladenia testacea R.Br. "Greenie", "Brownie"
Abercrombie Caves (KM/NH, 20-10-1951), Tarana (IB, 10-1955)* Rockley Mt. (IB, 11-1955)*
Flowering Period: August to November.
* (IB doubts their identity, but can find no more suitable place for them.)

75. Caladenia praecox Nicholls
Munghorn (JB, 2-10-1960), Rockley Mt. (JB, 20-11-1960), Wyangala Dam (WB. 27-10-1962), Abercrombie Caves (AD & Curnow, 2-10-1955).
Flowering Period: August to October.
("There is considerable doubt as to whether (this species) is entitled to specific rank". JB. WB. concurs.)

76. Caladenia deformis R.Br. "Blue Fairies"
Molong (Rupp/NH, 8-1916), Eugowra (WB, 21-9-1963; WFG, 9-1966), Beargamil (GPA, 1-10-1964 - fruiting), Curumbenya Ra. (BW, 25-9-1966).
Flowering Period: July to October.

77. Caladenia caerulea R.Br. "Little Blue Bird"
Guntawang (H), Rockley Mt. (WB, 10-10-1961), Mudgee (KI, 16-8-1952), Abercrombie Caves (WB, 29-9-1961; KI, 2-10-1960; AD & Curnow, 2-10-1955), Bindogandri Mt. (KI, 16-9-1961; BW, 9-9-1963), Rocks Ck. (KI, 24-9-1961), Peel Trig. (KI, 2-9-1942), Yetholme Trig. (WB, 16-10-1961; KI, 16-9-1961; Southwell, 8-9-1962), Gulgong (Haviland/NH, 10-1903; GPA, 10-1945), Olinda (WB, 8-10-1961), Molong (WFB/NH, 9-1932; WB, 3-9-1961), Jenolan Caves (WFB, 11-1899), Bathurst (WB, 8-10-1961), Orange (Mitchell/NH, 9-1906), Harvey Ra. (GPA; HTBH/KI, 1-10-1962; BW, 11-10-1966), Dubbo (GPA; KI, 15-8-1960; WB, 1-9-1961), Dripstone (GPA, 8-1945; IB & GPA, 8-1949), Springside (WFG), Four Mile Ck. (WFG, 11-9-1960), Murga (WFG), Mt. Canobolas (WFG), Wellington (WB, 1-10-1961; HTBH/KI, 16-9-1962), Mullion Ck. (KI, 23-9-1962), Curumbenya Ra. (BW, 23-10-1966), Mandagery (BW, 22-9-1963).
Flowering Period: Late July to October.

78. Glossodia major R.Br. "Large Waxlip Orchid"
Mudgee District (H), Harvey Ra. (EFC/NH, 2-10-1951; HTBH/KI, 1-10-1962; BW, 11-10-1966), Dunedoo (Musgrave/NH, 10-1945), Wellington (WB, 1-10-1961; IB, 8-1949; HTBH/KI, 16-9-1962), Bathurst (KI, 15-10-1942 & 5-10-1959; WJCR; WB, 20-9-1961), Olinda (WB, 8-10-1961), Molong (WB, 29-9-1961), Guntawang (GPA/NH, 9-1947), Rockley Mt. (Dibley/KI, 10-1960), Abercrombie Caves (KI, 2-10-1960; AD & Curnow, 2-10-1955), Kandos (KI, 9-10-1958), Four Mile Ck. (WFG & KI, 9-10-1960), Bindogandri Mt. (KI, 16-9-1961), Rocks Ck. (KI, 24-9-1961), Cudal (WFB/NH, 10-1906), Yetholme Trig. (WB, 16-10-1961; KI, 1-10-1961; WB & KI/KI, 4-11-1962), Bumberry (KI, 16-9-1961), Jemolan Caves (WFB/NH, 11-1899), Gulgong (Haviland/NH, 9-1903; GPA, 10-1945), Portland (Unknown/NH; WB, 16-10-1961), Dripstone (GPA, 8-1945; IB & GPA, 8-1949), Kerr's Ck. (GPA & Rupp/NH, 10-1950), Dubbo (GPA; WB, 29-9-1961), Yamble (GPA, 9-1947), Mullion Ck. (WFG, 1-10-1961; KI, 23-9-1962), Wyangala Dam (WB, 17-9-1961), Tarana (IB, 10-1955), Nangar (BW, 9-10-1966; BW/KI, 9-10-1966), Fitzgerald's Mt. AOMcF/KI, 17-10-1962), Curumbenya R. (BW, 23-9-1966).
Flowering Period: August to November.
Glossodia major R.Br. forma alba
Mullion Ck. (WB, 21-10-1962), Duramana (WB, 9-1963), Curumbenya Ra. (BW, 25-9-1966).
Flowering Period: September and October.

79. Corybas fimbriatus (R.Br.) Reichb.f. "Fringed Helmet Orchid"
Jenolan Caves (WFB/NH, 5-1900), Springside (WFG, 8-4-1959), Gulf Stream (WB & KI, 5-1963; WB, 1965).
Flowering Period: April to July, following a fairly wet summer.

80. Corybas diemenicus (Lindl.) Rupp et Nicholls "Cradle" or Helmet Orchid"
Guntawang (H/NH, 7-1886), Curra Ck. (Johnson/NH, 7-1945), Mullion Ck. (GPA, 1945: WFG), Summer Hill Ck. (WFG/KI, 13-9-1959), Four Mile Ck. (WFG/NH, 1-9-1957; WB & WFG, 18-8-1962), Yetholme Trig. (WB, 20-8-1962), Rockley Mt. (WB, 29-8-1962; 8-1963), Gulf Stream (WB), Duramana (WB, 18-10-1964), Beargamil (GPA, 1-10-1964), Abercrombie Caves (WFG, 8-1966), Wyangala Dam (WB, 7-1963), Mt. Canobolas (WFG).
Flowering Period: July to September.

81. Cryptostylis leptochila F. Muell. ex Benth. "Small Tongue Orchid"
Mt. Horrible (WFG, 20-5-1962 & 13-1-1963; Stark/KI, 3-2-1963 & 4-3-1963; WB, 18-11-1962 & 31-12-1962), Gulf Stream (WB, 11-1963).
Flowering Period: November to March.

82. Pterostylis concinna R.Br. "Trim" or "Natty Greenhood"
Guntawang (H;WB, 26-9-1964), Munghorn (KI, 30-7-1955), Eurunderee (RM, 15-6-1956), Yamble (GPA, 6-1947), Rylstone (WB, 2-6-1963).
Flowering Period: May to August.

83. Pterostylis curta R.Br. "Green Goblins", "Blunt Greenhood"
Guntawang (H; WB, 26-9-1964), Munghorn (KI, 27-9-1952), Wellington (GPA, 8-1945; WB, 17-9-1960; EB/NH, 6-10-1886; IB, 8-1949), Four Mile Ck. (WFG/NH & KI, 9-10-1960; WFG/BW, 11-8-1963; WB & WFG/WB, 18-8-1962), Tarana (Perry), Jenolan Caves (KI, 21-10-1962).
Flowering Period: Chiefly July to October.

84. Pterostylis nutans R.Br. "Parrot's Beak Orchid", "Nodding Greenhood"
Guntawang (H; KI, 26-9-1964; WB, 26-9-1964), Mullamuddy (H), Cooyal (H), Jenolan Caves (WFB/NH, 10-1899), Munghorn (J & C/NH, 9-8-1950), Four Mile Ck. (WFG/KI, 10-9-1961), Mt. Canobolas (WFG, 4-11-1956; WFG/KI, 9-10-1960; WB, 11-1963), Dripstone ? (GPA), Tarana (IB, 10-1955).
Flowering Period: June to November.

85. *Pterostylis acuminata* R.Br. "Pointed" or "Sharp Greenhood"
Mudgee District (Woolls), Olinda (R.Lowe/KI, 26-3-1967).
Flowering Period: March to June (but Woolls' specimen was flowering September to October).

86. *Pterostylis nana* R.Br. "Dwarf Greenhood"
Abercrombie Caves (JEI/KI, 18-10-1959; WB, 8-10-1961; B. Jones, 10-1962), Eugowra (WFG/NH, 12-8-1962; WB, 28-9-1963), Wyangala Dam (WB/NH, 17-9-1961), Yeoval (WFG, 9-7-1962), Four Mile Ck. (WFG, 18-9-1962), Obley (WFG, 16-9-1962), Mandagery (BW, 22-9-1963), Dripstone (GPA, 7-1963), Beargamil (WFG/KI, 13-9-1964), Mt. Canambro (BW, 4-8-1965), Bindogandri Mt. (KI, 27-9-1965; SC & BW, 27-8-1968), Harvey Ra. (BW, 13-8-1966), Dubbo (WB, 8-8-1964), Curumbenya Ra. (BW, 25-9-1966), Guntawang (H; WB & P. Althofer, 26-9-1964).
Flowering Period: July to October.

87. *Pterostylis pedunculata* R.Br. "Little Red Riding Hood", "Maroon Hood"
Mt. Werong (J & C/NH, 23-10-1951), Four Mile Ck. (WFG; 11-10-1964), Mt. Coricudgy (GPA, 5-1964).
Flowering Period: August to October.

88. *Pterostylis falcata* Rogers "Great Swamp" or "Sickle Greenhood"
Springside (WFG), Gulf Stream (WFG/KI, 1-12-1963; KI & BW/BW, 11-2-1967; SC, 12-1966; WB, 12-1963), Mt. Canobolas (WFG, 24-12-1966), Hampton (SC, 2-1968).
Flowering Period: November to February.

89. *Pterostylis grandiflora* R.Br. "Superb Greenhood"
Jenolan Caves (WFB, 5-1900).
Flowering Period: April to July.

90. *Pterostylis truncata* FitzG. "Bullnose" or "Brittle Greenhood", "Little Dumpy"
Mudgee (AD, 6-1947 - fruiting), Glanmire (EFC/NH, 15-3-1955), Munghorn (RM, 2-4-1956), Yetholme Trig. (WFG & KI/KI, 7-4-1963; WB, 11-4-1963; KI & BW/BW, 7-4-1963; KI, 12-4-1963), Kandos (WB, 7-4-1963), Ophir (WFG, 3-1969).
Flowering Period: February to June, but chiefly April and May.

91. *Pterostylis coccinea* FitzG.
Springside (WFG/KI, 26-2-1961), Abercrombie R. (WB, 23-3-1962; GPA, 1964), Porter's Retreat (WB, 23-3-1962; WB/KI, 10-2-1963), Mt. Canobolas (WFG;KI, 9-3-1967 - green flowered), Jenolan Caves (Verboog/KI, 1-3-1963), Yetholme (WB, 7-4-1963), Gulf Stream (WB, 8-3-1964; KI & BW/BW, 11-2-1967; *KI, 21-2-1967; SC, 2-1967 & 2-1968), Hampton (SC, 2-1968).
Flowering Period: Summer.
* This recording was of a green flowered plant which appeared in cultivation.

92. *Pterostylis revoluta* R.Br. "Autumn Greenhood"
Mudgee (Collie/NH; KI/LIC, 12-5-1952; *AD, 6-1947), Yetholme Trig. (WB, 15-2-1962; WFG & KI/KI, 7-4-1963; KI & BW/BW, 7-4-1963; KI, 23-2-1964), Duramana (WB, 20-3-1962), Rocks Ck. (WB, 17-4-1961), Bathurst (WB, 10-3-1962; KI, 12-4-1963 - dying),Dubbo (WB, 25-5-1962 & 9-6-1962), Wyangala Dam (WB, 2-6-1961), Mt. Buckaroo (KI, 7-6-1952), Dripstone (GPA/NH, 4-1946 & 5-1948), Gulgong (Haviland/NH, 4-1901; Skinner/NH, 5-1903), Guntawang (H), Olinda (WB, 17-2-1962), Wellington (Barnett, 4-1913; GPA;KI, 30-4-1963), Molong (Cheel/NH, 6-1926; WFG/KI, 28-5-1961), Four Mile Ck. (WFG/KI, 11-2-1962), Abercrombie Caves (AD & Curnow, 2-10-1955 - fruiting), Tarana (IB, 3-1956 & 20-1-1962), Bindogandri Mt. (BW, 15-5-1963), Back Yamma (BW, 16-4-1966), Obley (WFG/KI, 14-4-1963), Eugowra (WFG & SC, 1962), Mt. Horrible (Stark/KI, 10-3-1963), Gulf Stream (KI, 24-2-1963; KI & BW/BW, 11-2-1967; BW/KI, 11-2-1967).
Flowering Period: January to June.
*"A form very close to *P. longipetala*." AD.

93. *Pterostylis reflexa* R.Br. "Moss", "Striped" or " Dainty Greenhood"
Mudgee (Collie/NH; Taylor; KI, 26-3-1951), Mt. Canobolas (WB, 4-1962), Dripstone (GPA), Mudgee District (H), Yetholme (WB, 9-4-1963), Molong (WB, 2-5-1963 - dying).
Flowering Period: March to May.

94. *Pterostylis laxa* Blackmore
Mudgee (KI, 12-5-1952), Kandos (WB, 7-4-1963 & 2-3-1963), Nullo Mt. (Metcalfe, 1963).
Flowering Period: March to May.

95. *Pterostylis longicurva* Rupp
Cullen Bullen (Winney/NH), Guntawang (WB, coll. 26-9-1964*)
Flowering Period: March to June.
* Chance collection with *P. nana*, flowered 3-1967 in cultivation. WB.

96. Pterostylis alata (Labill.) Reichb.f. "Purplish Greenhood"

Guntawang (H), Four Mile Ck. (WFG/NH, 5-6-1960; WFG/KI, 5-6-1960; WB & WFG/WB, 18-8-1962; WFG/BW, 11-8-1963 & 3-6-1963).

Flowering Period: April to August.

97. Pterostylis obtusa R.Br. "Forest Greenhood","Blunt Tongue Greenhood"

Cooyal (Collie/NH;H). Mt. Canobolas (WFG), Munghorn (KI, 9-3-1967), Yetholme Trig. (WB,7-4-1963).

Flowering Period: April to June.

98. Pterostylis fischii Nicholls

Gulf Stream (KI, 24-2-1963; KI & BW/BW, 11-2-1967; SC, 2-1968; KI & WFG, 1-2-1970), Yetholme Trig. (WB, 1963 & 26-2-1964).

Flowering Period: February to May.

99. Pterostylis decurva Rogers "Summer" or "Red Tongue Greenhood"

Tarana (IB, 4-1961), Porter's Retreat (WB, 23-3-1962; WB/KI, 10-2-1962), Mt. Canobolas (WFG, 10-2-1963*; WB, 12-4-1964), Gulf Stream (KI, 4-4-1964; WB, 3-1-1964; WB/KI, 7-3-1964; KI, 21-2-1967 - cult.; WB/BW, 11-3-1964; BW, 11-2-1967; SC, 2-1967 & 2-1968), Sunny Corner (O. Stark/KI, 23-2-1964), Four Mile Ck. (WFG), Hampton (SC, 2-1968).

Flowering Period: Summer.

* "Labellum longer than normal." WFG.

100. Pterostylis parviflora R.Br. "Baby" or "Tiny Greenhood"

Wyangala Dam (WB, 16-5-1960), Porter's Retreat (WB, 25-3-1962), Rockley Mt. (WB, 30-12-1960), Olinda (JEI/KI, 6-8-1961 - fruiting; WB, 17-2-1962), Guntawang (Collie/NH), Mudgee District (H), Mudgee (Collie;KI, 8-1949), Bathurst (WB, 14-4-1961; KI, 12-4-1963 - fruiting), Capertee (Rupp, 4-1917), Dripstone (GPA, 4-1946), Dubbo (GPA/WB, 20-3-1962), Yetholme Trig. (KI, 29-1-1962; WB, 29-1-1962; WFG/NH, 4-2-1962), Mt. Buckaroo (KI, 7-6-1952), Tarana (IB), Mt. Horrible (Stark/KI, 4-3-1963 & 16-3-1963), Oberon (KI, 18-3-1964) Bumberry (KI, 29-4-1964), Gulf Stream (KI & BW/BW, 11-2-1967), Bindogandri Mt. (BW, 5-5-1963), Abercrombie Caves (KI, 15-4-1963 - fruiting; KI, 28-1-1964), Mt. Canobolas (WFG, 10-2-1963*), Duramana (WFG).

Flowering Period: At various times, chiefly perhaps in the autumn.

* Red form.

101. Pterostylis daintreana F. Muell. ex Benth.

Olinda (GPA, 5-1952; WB, 18-2-1962).

Flowering Period: March to July, normally.

102. Pterostylis longifolia R.Br. "Trigger Tongue"

Guntawang (H)*, Bathurst (WB, 20-9-1958), Rockley Mt. (WB, 14-10-1959), Abercrombie Caves (WB, 17-9-1961; AD & Curnow, 2-10-1955), Gulf Stream (KI, 22-8-1942 & 10-1943), Upper Meroo (KI, 13-8-1950), Rocks Ck. (Stark/KI, 24-9-1961), Mt. Canobolas (WFG/KI, 9-10-1960), Mt. Horrible (WFG, 20-5-1962 - in bud; WB, 18-11-1962), Neurea (GPA, 1-11-1963 - fruiting), Mt. Coricudgy (GPA, 5-1964), Yetholme Trig. (WB & KI/KI, 4-11-1962 - fruiting; Southwell, 8-9-1962).

Flowering Period: May to November.

* Smooth labellum.

103. Pterostylis woollsii FitzG. "Longtail Greenhood"

Molong (Woolls), Gulgong (Wilkinson; GPA, 24-12-1963), Guntawang (H), Locksley (Cambage/NH, 11-1899), Dripstone (GPA/NH, 10-1945; GPA/KI, 29-10-1961), Abercrombie Caves (AD & Curnow, 11-11-1955), Harvey Ra. (WB, 6-1963 - in bud), Mullion Ck. (WFG, 3-11-1963; WB, 11-1963), Four Mile Ck. (WFG).

Flowering Period: Spring and Summer.

104. Pterostylis biseta Blackmore et Clemesha

Mudgee District (H), Guntawang (GPA, 10-1945), Dripstone (GPA/NH, 9-1945 & 14-7-1964).

Flowering Period: September to November.

105. Pterostylis hamata Blackmore et Clemesha

Guntawang (H), Dripstone (JB, 11-1961; GPA, 14-7-1964), Apple Tree Flat (KI, 17-9-1949), Mudgee (AD, 14-9-1947).

Flowering Period: September to November.

106. Pterostylis boormanii Rupp "Chinese Lanterns"

Peak Hill (B/NH, 10-1906; WB, 10-1963), Guntawang (GPA, 10-1945), Dripstone (GPA/NH, 10-1945), Beargamil (WFG, 10-1964 - in bud), Cookamidgera (BW, 10-1964), Bumberry (GPA, 9-1964), Curumbenya Ra. (BW, 23-10-1966), Dubbo (WB, 10-1963), Mudgee District (H), Harvey Ra. (GPA).

Flowering Period: September to November.

107. Pterostylis gibbosa R.Br. ssp. mitchellii (Lindl.) Blackmore et Clemesha
Dripstone (GPA, 10-1963), Murga ? (IB, 11-1955), Bumberry (GPA, 19-1964).
Flowering Period: September to November.
("Some, if not all, of the above specimens are probably P. boormanii." BW.)

108. Pterostylis rufa R.Br. ssp. rufa "Ruddy Hood"
Glanmire (Ivatt/NH, 11-1915), Yetholme Trig. (WB & KI/KI, 4-11-1962; WB, 10-1962), Charlton (WB, 1-11-1962), Gulf Stream (K. Giles, 2-12-1964; SC, 11-1966), Bathurst (WB, 10-1959), Rockley Mt. (WB, 10-1962), Abercrombie Caves (KM/NH, 21-10-1951).
Flowering Period: September to December.
ssp. aciculiformis (Nicholls) Blackmore et Clemesha
Yetholme Trig. (KI, 12-11-1961; KI, 9-11-1963; WB, 18-11-1961), Yetholme (WB, 29-10-1962), Charlton (WB, 26-11-1961), Rockley Mt. (WB, 26-11-1961; WFG, 19-12-1962; AOMcF/KI, 23-10-1962), Four Mile Ck. (WFG, 19-11-1960 & 12-11-1961), Olinda (GPA, 5-1964 coll.), Nangar (BW, 9-10-1966).
Flowering Period: September to December.

109. Pterostylis mutica R.Br. "Midget Greenhood"
Mudgee District (H), Gemalla (WB, 11-11-1961), Wyangala Dam (WB, 17-9-1961), Wellington (Campbell, IB & Weymouth/NH, 8-1949), Eugowra (WFG, 12-8-1962; WFG & SC, 9-1962; BW, 3-10-1966 & 5-10-1963), Yetholme (WB, 11-11-1961), Duramana (WB, 31-10-1961), Cooyal (RM, 4-10-1954), Dubbo (WB/KI, 1-9-1961; GPA, 9-1945), Peel (WB, 4-10-1961), Peel Trig. (KI, 23-9-1942), Munghorn (KI, 27-9-1952), Bathurst (WB, 20-10-1961; WJCR), Dripstone (IB & GPA, 8-1945; GPA, 8-1949), Obley (WFG/KI, 16-9-1962), Tarana (IB, 10-1955), Manildra (WFG), Kerr's Ck. (WB, 21-10-1962), Harvey Ra. (BW), Mudgee (Roth, 12-10-1966), Curumbenya Ra. (BW, 25-9-1966).
Flowering Period: August to November.

110. Pterostylis cycnocephala FitzG. "Swan Greenhood"
Molong (Ross), Mudgee (HD/NH, 10-1881), Guntawang (H), Peak Hill (B/NH, 10-1906), Cobbora (Smith/NH, 17-7-1939), Abercrombie Caves (KM/NH, 20-10-1951; AD & Curnow, 2-10-1955), Dubbo (GPA), Store Ck. (GPA/NH, 9-1950), Dripstone (GPA & Rupp, 10-1950), Rocks Ck. (WFG, 28-9-1962 & 1-7-1962; KI, 27-10-1963), Tarana (IB, 10-1955), Baldry (BW & KI/KI, 23-10-1965), Rylstone (WB, 1-11-1962), Mullion Ck. (WB, 21-10-1962), Eugowra (BW, 3-10-1966 & 5-10-1963), Yetholme Trig. (KI, 30-11-1963).
Flowering Period: Chiefly in the Spring.

111. Pterostylis barbata Lindl. "Yellow Tongue"
Abercrombie Caves (KM/NH, 20-10-1951; KI, 11-11-1961 - fruiting; KI & BW/BW, 26-10-1963; WB/KI, 9-10-1961; WB, 15-10-1961), Beargamil (GPA, 1-10-1964), Curumbenya Ra. (BW, 17-10-1964 & 25-9-1966), Duramana (WB, 28-10-1964).
Flowering Period: September and October.

112. Gastrodia sesamoides R.Br. "Potato Orchid", "Cinnamon Bells"
Jenolan Caves (Cambage/NH, 12-1911; WFB, 11-1899), Springside (WFG/NH, 11-1-1961; KI, 19-11-1960), Gulf Stream (WFG/KI, 28-11-1965; SC, 12-1966), Yetholme (WB, 19-12-1962).
Flowering Period: October to January.

113. Spiranthes sinensis (Pers.) Ames "Lady's Tresses"
Jenolan Caves (WFB/NH, 1-1900; WB, 2-1-1957), Olinda (WB, 21-1-1962), Abercrombie R. (WB, 27-1-1962), Springside (WFG/KI, 2-2-1961), Sodwalls (KI, 24-2-1960), Mullion Ck. (WFG).
Flowering Period: Chiefly December to February.

114. Liparis reflexa (R.Br.) Lindl. "Yellow Rock Orchid"
Mullamuddy (H), Olinda (WB; GPA, 5-1952), Rylstone (WB), Cooyal (H), Jenolan Caves (WFB, 5-1900), Mudgee (GPA).
Flowering Period: Autumn.

115. Dendrobium speciosum Sm. "Rock Lily" "King Orchid"
Mullamuddy (H), Cooyal (H), Munghorn (KI, 27-9-1952; WB), Olinda (WB, 8-10-1961; KI), Jenolan Caves (WFB, 11-1899; KI, 20-10-1962), Rylstone (GPA), Mudgee (GPA).
Flowering Period: August to November.

116. Dendrobium teretifolium R.Br. "Rat's Tail Orchid" "Clematis Orchid"
Kelgoola (Baker), Cooyal (H), Rylstone (GPA, 5-1964 - coll.).
Flowering Period: July to October.

117. Dendrobium teretifolium R.Br. var. teretifolium "Rat's Tail Orchid" "Clematis Orchid"
Kelgoola (Baker), Cooyal (H), Rylstone (GPA, 5-1964 - coll.).
Flowering Period: July to October.

Dendrobium teretifolium var. fairfaxii (FitzG. et Muell.) FitzG. ex Moore et Betche
Jenolan Caves (WFB/NH, 10-1899).
Flowering Period: September to November.

118. Dendrobium striolatum Reichb.f. "Rock Pencil Orchid"
Jenolan Caves (WFB, 10-1899; KI, 20-10-1962 - in bud), Olinda (WB, 20-10-1960), Munghorn (KI, 30-7-1955 - in bud; RM, 4-10-1954), Rylstone (GPA).
Flowering Period: September to November.

119. Dendrobium pugioniforme A. Cunn. "Dagger Orchid"
Rylstone (GPA, 4-1964 - coll., short thick flowered form), Mt. Coricudgy (GPA, 5-1964 - coll.).
Flowering Period: October to November.

120. Dendrobium linguiforme Sw. "Tongue", "Button" or "Thumbnail Orchid"
Rylstone (GPA).
Flowering Period: Late August to November.

121. Dipodium punctatum (Sm.) R.Br. "Christmas" or "Hyacinth Orchid"
Mt. Knowles (KI, 10-12-1950), Porter's Retreat (WB, 28-11-1961), Oberon (WB, 20-2-1959), Cooyal (H), Olinda (WB, 11-12-1960), Yetholme Trig. (WB, 23-1-1962), Jenolan Caves (WFB, 11-1899), Mt. Horrible (WB, 17-4-1962; Stark/KI, 27-1-1963; WFG, 13-1-1963), Glanmire (Kefford/NH, 1-1911), Gulf Stream (WB, 13-2-1961), Mt. Canobolas (WB, 14-3-1962), Springside (WFG), Kandos (KI, 26-12-1961).
Flowering Period: Chiefly during the Summer months (Nov./April), but irregularly.

122. Dipodium hamiltonianum F.M. Bail. "Green Hyacinth Orchid"
Guntawang (H/NH), Bumberry (Cleland/NH, 1-1916), Manildra (Daniel/NH, 1-1908), Elong Elong (Sullivan/NH, 2-1929), Dripstone (GPA, 12-1945), Summer Hill Ck. (WFG, 17-12-1961). Duramana (WB, 17-1-1964), Long Point Rd. (WFG, 12-1966).
Flowering Period: October to February.

123. Cymbidium canaliculatum R.Br. "Banana Orchid"
Forbes ?, Dripstone (GPA, 1920-1).
Flowering Period: October to December.

124. Cymbidium suave R.Br. "Snake Flower"
Mudgee (Woolls), Glanmire (WB, 13-2-1961 - in fruit), Jenolan Caves (WB).
Reported also from the Parkes district, but no specimens preserved. BW.
Flowering Period: October to January.

---oOo---

PRINCIPAL REFERENCES:

Rupp, H.M.R.: Orchids of New South Wales, 1943.
Orchid Flora of Central Western Slopes (P.L.S., 1948, p.130).
Personal Communications to G.W. Althofer.
FitzGerald, R.D.: Australian Orchids (2 vols. 1882).
Nicholls, W.H.: Orchids of Australia, 1951.
Notes in Vic. Nat., 1930-56.
Giles, W.E.: Native Flora of Orange (Aust. Wildlife, 1961, p.63).
Personal Communications to C.K. Ingram.
Hamilton, A.G.: Orchids of Mudgee District (P.L.S.,1, 1886,p.865).
Althofer, G.W.: Orchids of Dripstone District (Vic. Nat. 8-1946, p. 101).
Personal Communications to C.K. Ingram.
Blakely & Wiburd: Plants collected at Jenolan Caves, (AG. Gaz. 1900, p.1390).
Personal Communications by Miss I. Bowden, Messrs. Rupp, L. Cady, J. Blackmore & A.W. Dockrill to C.K. Ingram.
Ross, W.J.C.: Notes on the Flora of Bathurst (AAAS, 1898, p.467).
Willis, J.H.: A Handbook to Plants in Victoria, Vol.1.
McGillivray, D.J.: Supplement to Rupp: The Orchids of N.S.W. Facsimile Ed. 1969.

Pollination By The Common Native Bee. cont.

A third bee of this species has been collected by Mr. Les Polkinghorne of the Townsville Group of A.N.O.S. This time the bee was found carrying the pollinia after its removal from Cymbidium madidum. It does not appear likely that crosses between these orchids could occur even though the same pollinator is involved. The Cymbidium would be genetically incompatible with the Dendrobiums. The pollinia of D. speciosum would be wiped off prior to entry into the D. lichenastrum flower due to the large size of the pollinia and the snugness of fit, of the insect. The case of the D. lichenastrum pollinia bearing insect, pollinating the Dendrobium speciosum is just as unlikely, due to the pollinia being so minute. Whether they are compatible of course, is another question.

Last week I found a fourth native bee pollinating Dendrobium luteocilium. This bee is different to the ones mentioned above and at this moment I am having trouble with its identification. I will report this as soon as it comes to hand.

R. Smythe, James Cook University of North Queensland.

ORCHIDS OF PAPUA AND NORTH QUEENSLAND. cont. from Vol. 3. No. 10.

R. Smythe

Its only distinguishing feature was the peculiar translucent nature of the pseudobulbs, i.e. Dendrobium nobile like. I will be very interested to see what the flower is like. Another plant that I saw there which fits the description of an undescribed Australian orchid as conveyed to me by Mr. J. Walker in Cairns, is for all the world like small plantlets of Oberonia muellerana, connected by leafless rhizomes which connect the individual rooting plantlets. I think this plant has been described in "Flora of Malaya", but I do not have the text at hand to check this out.

Next stop was Horn Island. I flew from Daru to Horn Island in an old 'plane which the pilot reassuringly informed me was going to be taken out of service in a week or two. Until this flight I thought only birds and bats flew by flapping their wings. Anyway if Dendrobium bigibbum seed had settled on this 'plane at Horn Island there is no reason why it should have been blown off by the time the 'plane arrived back at Daru. So much for poetic licence. Anyway, its the only 'plane I have ever flown in with a cracked window, upholstery held together with contact cement and the rubber hanging off the doors.

While delayed by customs at Horn Island, I checked out the local scrub. Here I saw the largest flowered D. canaliculatum ever. The flowers were 1¼" in diameter. Everything about the flowers was larger than the published upper limits of this species. It was a deep yellow form. I noticed on the island that the yellow and chocolate forms grow side-by-side. I am curious now as to how this purity is maintained. Is it genetic dominance, or is it a selective pollinator ?

Dendrobium bigibbum and Dendrobium johannis were also in evidence here.

Next came a short sea trip to Thursday Island. Here I made a big impact with a local grower. He showed me his favourite plant of 'curly pink' (D. superbiens) and I said, "you got that from Prince of Wales". He was somewhat taken aback by a southerner stepping ashore and telling him where he got his plant from, and being right at that. It just so happens that in Townsville we call this form "Prince of Wales". About now I realised I had a fan. By the time I finished my stay on this island, I was prepared to beleive that my statement was rather more luck than good management, as the local experts do not consider the Prince of Wales Island forms at all distinctive.

After this, a good day or more was spent tramping over this island with the following plants being observed: Dendrobium bigibbum, D. johannis, D. canaliculatum, Luisia teretifolia and Chiloschista phyllorhiza. I believe quite a variety of terrestrial orchids can be found after the wet.

I have never really been interested in the ecology of orchids, other than D. smilliae, which by the way, has been found on the islands in this area, but not on Thursday Island. Though I do not pretend to understand it, I am never-the-less, fascinated by the zoning that occurs with orchids. For example, on Thursday Island, I walked up a hill and saw predominantly Dendrobium johannis, growing mainly on rough bark trees. I crossed the summit and on walking down the other side of the hill I saw predominantly, Dendrobium bigibbum, growing on smooth barked deciduous trees. The trees were mixed up, rough and smooth barked, fairly uniformly over the island, yet there was distinct zoning of the orchid population. A similar thing occurs in the Townsville area, where the native Phalaenopsis grows on the southern banks of creek in a gorge and not on the northern banks, both banks having rainforest.

continued page 150.

Orchids Of Papua And North Queensland. cont.

This is offered as food for thought for the ecologist and I am sure readers of this article can now remember examples of this experience within their own tramping grounds.

Fortunately for me, I obtained permission to visit one of the missions. This mission was on Hammond Island and offered me the chance to see our native species growing in a relatively undisturbed condition. The priest on the island was rather interested in finding out a little about these orchids which he had heard so much about, but had never been able to find. He decided to tag along for the trip and proved quite stimulating company. I quickly managed to find him a plant and clued him up on how to travel fast and find what I called "mongrel scrub", where these small deciduous trees grew, and then to stop and look around for the orchids. He soon became an expert spotter. I also taught him the old law of the bush, i.e. that is, never be second man when walking through the bush as he gets all the green ants, ticks etc. which the leader disturbs. The rest of the trip was at a jaunty pace with much vieing for position.

I must say at this stage, that looking for Dendrobium bigibbum is difficult at first, as the plants are leafless, more often than enough, and look just like any other bundle of twigs on the tree. Just for the records I stopped at one good tree and commenced to count the D. bigibbum plants on it. I stopped at about fifty, as I could not decide how small a plant I should count. I believe that this species must compete with Dendrobium canaliculatum as being the most densely populating of the Australian orchids.

In more shaded areas on the island the trees were covered with the leafless orchid Chiloschista phyllorhiza, which to my way of thinking has evolved perfectly for adaptation to these dry conditions. I have also observed this species growing in a dry area at the same latitude as Ingham in north Queensland. These recordings extend the known range of this orchid considerably. Orchids growing on these islands find themselves in unbelieveably dry conditions. The ground is boulders, with the trees having no canopy at this time of the year. Water as such, is confined to the wet season. Leaf abscission by the orchids is obviously a necessity, for water conservation and hence, survival. Something that was quite noticeable about the D. bigibbum plants was the small size of the plants. 95% or more, were under 12" long. I investigated this and have come to the conclusion that this is not a phenotypic characteristic, but a dwarfing caused by the tremendous damage inflicted on even the smaller plants by the Dendrobium beetle. The pseudobulbs are drilled out by the insect and die from this point upwards. This depletes the food reserve for the new growth resulting in dwarfed plants. Plants from this same area which have been grown in Townsville under optimum conditions for about three years can reach four feet in length.

While on Thursday Island, I was fortunate to see what I believe is one of Australia's most beautiful orchids. I do not intend dwelling on this subject, as the finder of this plant has indicated to me that he will try and write something about it later. Dennis Kitchen is an avid reader of The Orchadian and this might remind him to do something about the matter. The flower is Dendrobium discolor, which deserves varietal rather than formal rank. Maybe it will be called variety kitchenii someday, in honour of its finder. The flower is basically white, as compared with the base colour of yellow, normal for D. discolor. When viewed under a dissecting microscope, the cells of the flower are completely clear and translucent in comparison to the yellow sap colour, of D. discolor as commonly known. The colour of the flower might be called lavender or pink, but never yellow-gold, or brown. Looking again with the microscope, these latter colours are not found in the pigment cells. The pigment present appears to be a single colour. It is most likely that it is the same pigment as the other golden or brown orchids, as the latter two colours could be a result of a blend with the yellow background. This find by Dennis, which by the way, was on the Australian mainland, offers some hope for finding a truly white albino form of D. discolor in the future. The usual sceptic of pink flowers will no doubt, be saying that this is only an old flower, well I will hasten to add that this flower was a week old before I saw it and Dennis confirms its colour over this period. I have had it for a further week and give witness to its colour over this period of time.

If this was not a find enough, Dennis also collected in the same area, what appears to be a natural cross between D. discolor and D. johannis. I was given one flower of this plant and have drawn for inclusion in this article as much of the flower as was possible.

Unfortunately at our last group meeting the pollen and anther cap were lost and hence are missing from the sketch.

After a first look at the drawing, one might think that the flower looks very much like Dendrobium discolor. I would like to point out that though the sepals and petals are twisted

Continued Vol. 3. No. 12.

Australian Native Orchids In Colour cont.

several inconsistencies and outright errors. The book is without a doubt one of the most attractive and interesting ever produced on the subject and it is, therefore, annoying to find these simple errors which could have been so easily eliminated. Readers should not construe from my remarks that the book is any the less attractive for these minor shortcomings. It is a joy to look at and I have personally derived many hours of pleasure from just looking at the superb colour plates. It's a must for all who love Australian native orchds. Get your copy from your nearest book shop now!

Australian Native Orchids in Colour by Leo Cady and E.R. Rotherham. 112 pages with hard cover printed in four colours and dust jacket similarly printed with celloglazed finish. 6 7/8" X 7¼". 100 colour plates. Published by A.H & A.W. Reed. $3.95 per. copy.

A point which will be of very great interest to readers is the excellent series of colour photographs showing insects in the act of pollinating native orchid flowers. Again, do not miss out, get your copy before it goes out of print.

A NEW NATURAL HYBRID.

Denis R. Kitchen

I would like to report the discovery of an orchid which I recently found while on a trip to the tip of Cape York Peninsula. Actually I collected two different orchids, but I am not sure yet just what the second plant is.

1. The orchid appears to be a natural cross between Dendrobium johannis and D. discolor. Two plants were collected about two miles apart, in country which carries no D. johannis at all. This area is the sand dunes against the beach, being up to a ¼ of a mile wide, then changing abruptly to open forest, carrying odd plants of D. johannis. Both plants were growing in clumps of D. discolor, which grows in profusion in the sand dune area. The pseudobulbs on the plants are 3' long on average and a maximum diameter of 5/8", with the leaves larger than those of D. johannis, flat and not channeled as in this species. One plant was carrying aerial shoots and these are typical D. johannis, with narrow channeled leaves and straited markings on the pseudobulbs. Flowers are on an average of 2½" in diameter with rather wide petals and sepals. The middle lobe of the labellum is curled as in D. discolor and not the flat spade shape of D. johannis. The large plants of D. johannis occuring in our area only have pseudobulbs 18 - 20" long and flowers 1" - 1½" wide.

2. The second plant was located by my'fiance'and appears to be typical D. discolor except that the flowers are white on the back and faintly striated with blue on the front. The labellum is yellow and white.

I collected another plant of this type about 200' from the first, but the sepals and petals are suffused with pale brown instead of blue. I have shown the flowers of both plants to orchid collectors in the area and no one has ever seen a plant of this type. I have heard a second hand report of a pure white D. discolor being taken from the same area several years ago but can not find out anything definite.

I regret that I do not have sufficient knowledge of the subject to offer a more detailed botanical description, but both plants were seen by a member of the A.N.O.S. Townsville Group, who works in the James Cook University. He agrees with me on the D. johannis X D. discolor plant, (having already seen garden hybrids of the two) but has no knowledge of the second plant.

I hope this information is of some value to the Society and that you can offer some more information on these plants.

Denis R. Kitchen, Box 156, Thursday Island. 4875.

TWO INTERESTING FLOWERING OCCURRENCES.

David L. Jones.

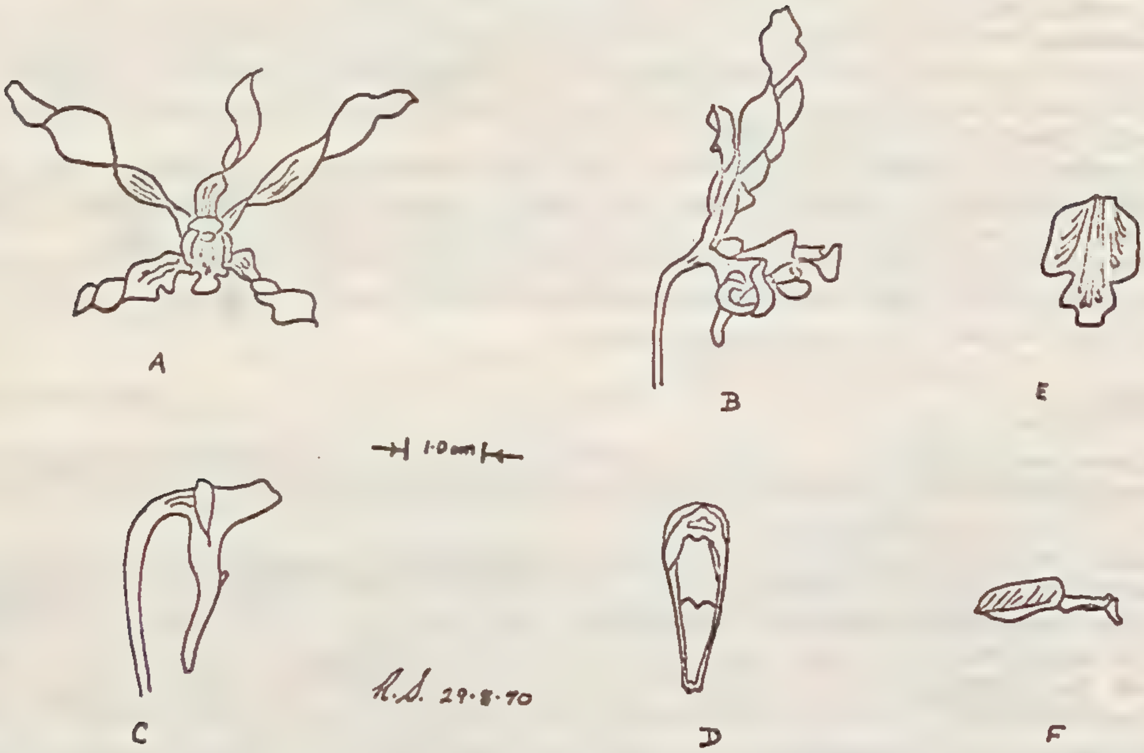
Two interesting flowering occurrences were noted on a recent trip to Mallacoota. Both are unusual, one occurring very late and intruding on the emergence of this seasons crop of leaves; the other being early for the species. Both can be attributed to the extremely wet season. Rain has been abundant over most of southern Victoria this year (1970) and it could auger well for a good spring and summer flowering.

The most unusual find was Caleana major, still flowering on 24 - 5 - 70. This was seen growing amongst stunted brown stringybark and heathlands on the western side of the lake, about two miles from Lake View. A couple of solitary specimens were found first and then a colony was located by one of the party. The flowers were still fresh and the labellum functional. Cliff Beauglehole had collected specimens of the species from the same locality

continued page 152.

A New Natural Hybrid. cont.

Dendrobium discolor X Dendrobium johannis



Dendrobium discolor X D. johannis - KEY TO PLATE.

A. Flower from the front.....to scale.
B. Flower from side..........to scale.
C. Column minus anther cap from side to scale X2
D. Column minus anther cap from front to scale X2
E. Labellum flattened out to scale.
F. Labellum from side to scale.

--oOo--

Two Interesting Flowering Occurrences. cont.

in December 1969. This gives these particular plants a flowering period of almost six months, which is quite a feat. Most remarkable however, was the find in the colony, around the flowering plants, of the new seasons leaves. These were above ground and well developed, being up to 3" long.

The second find was far less spectacular but still of interest. This was Pterostylis nutans found flowering on 27-5-70, amongst coastal scrub, south of the Betka River. They were growing in a small loose colony under bracken. Three were flowering and several more were in advanced bud. Because they were so early it was thought that they might be the autumn/winter flowering form from N.S.W.,(Pterostylis nutans var. hispidula R.D. FitzG.). However, the specimens were carefully examined and all were typical P. nutans var. nutans.

These occurrences are probably not usual for the species in this area; however, they do extend the flowering period and give an indication as to how such plants can react to optimal conditions as experienced this season.

David L. Jones, 2 Kathleen Close, Bayswater, Vic. 3153.

ORCHID FLORA OF THE CENTRAL WEST, N.S.W.

Readers will have noticed the large centre section of this issue has been devoted to Keith Ingram's and Brian Whitehead's valuable contribution to knowledge of our native orchids. This work is a complete revision of the earlier work published some ten years ago. I hope that other workers may decide to untertake similar work in other areas.

Note that the paper has been printed so that it may be detached from the rest of The Orchadian although the page numbers are in sequence (postal regulations). Members may wish to keep their original copy intact and order an additional copy for separate reference.

NS

THE ORCHADIAN

MAY, 1971.

PRICE: 30 cents

Published by The Australasian Native Orchid Society.

Vol. 3. No. 12.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
26 OCT 1972

Council

Patron: Sir John Hall Best
President: R.G. Napier
Hon. Secretary: H. Jay
Treasurer: E. Marygold
Records Sec.: D. Dawson
Minute Sec.: M. Spence
Vice Presidents: L. Bradford
J. Davies
Editor: M.J. Corrigan
Asst. Editor: F. McKinney
Immediate Past President: Eric Gordon

REGISTERED FOR POSTING AS A PERIODICAL - CATEGORY B.

Address all correspondence to: P.O. Box C106, Clarence Street, N.S.W. 2000.

ANNUAL GENERAL MEETING - 11th. SEPTEMBER, 1971.

The Annual General Meeting of the Society will be held in Sydney on the above date at 9 a.m. sharp in the Railway Institute, Chalmers Street

ANNUAL ELECTIONS.

Financial members are advised that the closing date for nominations will be the 4th. August, 1971. Date of election will be the 9th. September, 1971. Nomination forms will be forwarded to all financial members as prescribed by the Constitution and its Amendments.

MEMBERSHIP RENEWAL.

Members are reminded that annual subscriptions to The Australasian Native Orchid Society fall due on the 1st. July each year. Post your Postal Order or Cheque to the Society at the above address.
Ordinary membership is $2.50 per. annum. Make the task of our Hon. Treasurer so much easier, post that Cheque or Postal Order off tomorrow!

AUSTRALASIAN SARCANTHINAE - A Review of the Subtribe Sarcanthinae in Australia & New Zealand.

Your Council still has a quantity of completely sewn and collated copies of the above Society publication for sale at a greatly reduced price. They are complete, but not bound with covers. $1 per. copy, or 80¢ per. copy for bulk purchases of 10 or more copies. Address your order to our Hon. Secretary, at the above address.

NOMINATION FOR COUNCIL.

Due to the fact that many members may not have copies of the Society's Constitution and Amendments there has been considerable confusion over the correct method for nominating financial members for Council. To avoid confusion and reduce the load of our Hon. Secretary, who in past years has had people nominated for Council who were never members of the Society we print below the relavent portions of the Constitution and Amendments.
Clause 9 (d) "Nominations for any office shall be in writing signed by at least one member and the written consent of the person so nominated."

THE ORCHADIAN - BACK ISSUES.

Back issues of all copies of The Orchadian are available from your Society, either as bound volumes or individual issues. Write for further information regarding prices etc.

ORCHIDS OF PAPUA AND NORTH QUEENSLAND. cont.

and proportionate to Dendrobium discolor, they are not undulate, except at the extremities. The learned orchidologist might then argue "var. fuscum". I would then suggest looking at the lip. The disc and the midlobe are planar and not curved through about 90° as is customary with D. discolor. Actually, identification of this orchid was not as difficult as mentioned, as unfortunately line drawings do not always give enough information.

The sepals and petals of this flower have a smooth sheen much like D. johannis. The veining in the flower is also more prominent than in D. discolor. This and the pigmentation distribution take more after D. johannis. The peduncle and rachis of this flower is wiry, after the nature of D. johannis and D. bigibbum, not fleshy like D. discolor. I have not seen the plant, but I am sure Mr. D. Kitchen will send along a description of this in the future (see The Orchadian, pp.151-152, Vol. 3. No. 11.).

While in a technical vein, I would like to say something about Phalaenopsis amabilis var. papuana. While in Papua I had a long look at a flowering plant of this orchid and can see no difference what-so-ever between it and our own var. rosenstromii. I believe the latter should be reduced to a synonym of the former. If anyone can send me flowers of var. papuana I could compare it in more detail with the many flowers of var. rosenstromii which are native to the Townsville area. This would be most appreciated. I do hope A.N.O.S. has members in New Guinea who could oblige me in this way.

R. Smythe, James Cook University of North Queensland.

TRIP TO SUMMIT OF MT. BARTLE FRERE - JANUARY, 1970.

P. Laverack

The mountain was approached from the western side, via Lamonds Hill. This approach is certainly to be recommended as it means one commences to climb from an altitude of about 2,000 feet, not close to sea level as at Babinda.

The track follows an old logging trial, now overgrown and washed out, to the foot of the mountain. From here it ascends very abruptly, following the yellow blazes of the survey line. Although it is only about four years since the line was put in by a large team equipped with pack horses, mules, etc. there is now no sign other than the yellow blazes, some telephone wire and a rapidly disappearing campsite. This survey line continues nearly to the top of the range, but does not always follow the easiest country. An older blazed trail which keeps to the ridge tops provides much more comfortable walking, although it is vague in some places.

The trail climbs very rapidly to about 4,200 feet and then ascends more gradually to the campsite at about 4,800 feet. From here it is a short, steep climb to the summit at 5,287 feet.

The bulk of the mountain consists of very large granite boulders. In some places water may be had by climbing beneath these boulders, sometimes down to 40 feet or more. One such locality on the track up is known locally as "The Caves", and this is the only accessible water between the base and the campsite. "The Caves" are situated at about 3,500 feet. A very good stream is present at the campsite which is about 500 feet below the summit in a small gully. The water is permanent and it is a quite sizeable creek.

Botany: The bulk of the mountain is tall mountain rain forest with relatively few vines and the understory is quite open. It is not until about 4,500 feet is reached that any different vegetation types are seen. At these high altitudes there are quite extensive areas of grassland with no tree. This is probably due to shallow or poor soil. Gahnia sp. and Imperata cylindriea (sword grass and blady grass) were conspicuous in these areas as was Lycopodium sp. On the margin of the grassland and the rain forest, and elsewhere, are large areas of stunted scrub land termed locally "Turkey bush". This is about six to eight feet tall and almost impenetrable. In all these formations are very large granite boulders. In some of the gullies at about 4,500 feet are some limited areas of swamp, conspicuous in which are Pandanus sp. and Gahnia sp.

A feature of the more-boulder-strewn creeks and of the boulders on the north east face of the mountain is Rhododendron lochae F. Muell. and also Agapates meiniana F. Muell. Both these plants are members of the Ericaceae family more typical of the Northern Hemisphere and are recorded only on the highest mountain tops in North Queensland. R. lochae is very common in some areas forming large straggling or climbing shrubs and was in full flower in early January.

continued page 155.

Trip To Summit Of Mt. Bartle Frere - January, 1970. cont.

Orchids: To a naturalist or botanist the orchids must surely be one of the features of Mt. Bartle Frere. While the number of species present becomes more limited higher up, the number of individuals is enormous.

One of the most interesting orchids is Dendrobium fleckeri which is a rare orchid in Queensland, with a very restricted range. From about 3,500 feet to the summit it is extremely common, often covering extensive rock faces. Its attractive yellow-orange flowers were most obvious especially at higher altitudes. Its flowering season is September to Janauary. The growth habit of this orchid is very reminiscent of Dendrobium kingianum in southern regions.

Another more common plant is Cadetia taylori which attains an even more dense carpet on shaded rocks than does D. fleckeri. In fact, the close packed, short, green stems, often form patches many square yards in extent and on rocks and it is also very common on tree trunks. The flowers are crystalline white, with a pink labellum and, although small, are eye catching because of their number. Its flowering is erratic but it was in full flower in January.

Dendrobium ruppianum. This large orchid flowers in spring and we were not fortunate enough to see it in flower. It is a very common plant both on rocks and in trees. The flowers are up to 5 cm. across and are borne on an inflorescence up to 40 cm. long, with numerous flowers. The flowers are white or cream, not unlike the better known "King orchid" (D. speciosum). It is common in trees and on exposed rocks and, as the Bartle Frere plants are reputed to be "forma magnificum" its display should be worth seeing.

The other common Dendrobium was D. agrostophyllum which has smaller yellow flowers. One plant only was seen in flower and its flowers were larger than most of the lower growing species seen on the Tableland. This orchid was common in semi-exposed positions low down on small trees or on rocks. Bulbophyllum species were common, occuring on rocks or trees. Those seen near the summit were B. evasum, B. lilianae, B. wadsworthii and possibly B. newportii. The most interesting of these is B. evasum which produces its flowers on a condensed raceme which resembles a capitulum. The flowers are purple and hang on relatively long stems.

Another very common orchid in the better sheltered positions is Liparis fleckeri which spreads over boulders in the shade. The distribution of this species is quite limited being restricted to the Bellenden Kerr Range and Mt. Spurgeon. The flowering season is recorded as May but there are signs of more recent flowering in November or December. The flowers are insignificant and pale green. Liparis bracteata is described from this region also and there is a possibility that these two species are actually separated by varietal differences only. A plant of a Taeniophyllum species was seen and it was tentatively identified as T. flavum. It was probably quite common in the very stunted scrub. A few flowering plants of Sarcochilus olivaceus var. borealis were seen along the creek bank with their gold-brown flowers. One plant of Dendrobium adae was also found near the creek.

Three terrestrial orchids were seen near the summit. These were Chiloglottis reflexa in the margin of the grasslands, one plant was seen in flower, the remainder were in bud, or with still developing leaves.

Very common in the grasslands were plants of Dipodium ensifolium, one of Queensland's most handsome orchids. This plant (unlike our other Dipodium spp.) has well developed green leaves. The raceme stands about 2 - 3 feet high and the flowers are white to pink, with purple-red markings. The plants were in full flower in January. Small plants of Thelymitra spp. were seen, but these could not be identified with certainty. However, flowering specimens received from the area last year are consistent with T. aristata and it is probable that this is their identity.

At slightly lower altitudes the number of orchid species rose quickly with species such as Dendrobium carrii, D. adae and Bulbophyllum lageniforme becoming common.

At one other locality some notes of the orchids were taken. This was at "The Caves", altitude about 3,500 feet. Most of the rain forest types from the summit were noted together with several others. A complete list will be found at the end of this paper. Some interesting finds included the "Jewel Orchids", Goodyera viridiflora and Cheirostylis ovata growing in the leaf mould on flat boulders and some extremely large flowered plants of Calanthe triplicata (the Christmas orchid). Also very common were Bulbophyllum radicans and Dendrobium agrostophyllum.

Further down the trail Cymbidium madidum was seen. In the gullies near the foot of the mountain some plants of an exquisite jewel orchid with coloured leaves was found. This was Anoectochilus yatesae.

continued page 156.

Trip To Summit Of Mt. Bartle Frere - January, 1970. cont.

The western slopes of Mt. Bartle Frere proved most interesting botanically and also from the scenic point of view, there being numerous excellent vantage points over-looking the tablelands. Bartle Frere is one of the few remaining places where native orchids still abound, but the pleasures of this brooding mountain are reserved for the fit and determined, the indistinct trail is long and steep and it rains on most days of the year. This isolation, however, is the only effective way of preserving many of our native species and the day it is violated by "developers", "industry", "tourism" or any other of our present Gods, we will lose something irreplaceable. Already part of Mt. Bellenden Kerr, sister peak of Mt. Bartle Frere, and a supposedly inviolate National Park has fallen to the axe and cement mixer. It is up to the people of this country to see that places such as Mt. Bartle Frere remain untouched.

-O-

ORCHIDS of Mt. BARTLE FRERE

	Altitude in feet			Abundance
	Below 3,000	3,000 to 4,500	Above 4,500	C= Common F= F. Comm R= Rare
Dendrobium fleckeri Rupp et C.T. White		x	x	C
Dendrobium agrostophyllum F. Muell.		x	x	C
Dendrobium ruppianum A.D. Hawkes		x	x	C
Dendrobium adae F.M. Bail.		x	x	F
Dendrobium carii Rupp et C.T. White	x	x		R
Cadetia taylori (F. Muell.) Schltr.	x	x	x	C
Bulbophyllum lilianae Rendle		x	x	C
Bulbophyllum evasum T.E. Hunt et Rupp		x	x	C
Bulbophyllum wadsworthii Dockrill		x	x	C
Bulbophyllum lageniforme F.M. Bail.		x		C
Bulbophyllum radicans F.M. Bail.		x		C
Dipodium ensifolium F. Muell.			x	F
Cymbidium madidum Lindl.	x			F
Sarcochilus olivaceus Lindl.			x	R
Taeniophyllum flavum Dockrill			x	R ?
Taeniophyllum wilkianum T.E. Hunt		x		R ?
Calanthe triplicata (Rumph.) Ames		x		R
Liparis fleckeri W.H. Nich.		x	x	C
Chiloglottis reflexa (Labill.) Druce			x	R
Thelymitra aristata Lindl.			x	R
Goodyera viridiflora (Bl.) Bl.		x		R
Anoectochilus yatesae F.M. Bail.	x			R

Note: Altitude and abundance applies only to the immediate vicinity of the track, except above 4,500 feet where a fairly exhaustive search was made.

P. Laverack, Botany Dept, Queensland University, St. Lucia, 4067. Qld.

THE POLLINATION OF CORYBAS DIEMENICUS (Lindl.) Rupp et Nicholls ex Rupp

David L. Jones

In September 1969, while examining flowering plants of Corybas diemenicus at Mount Morton Victoria, I came across a tragedy of nature which I believe gives an important insight into the pollination of this orchid. One flower had a small insect on the labellum, with a pollinarium securely attached to its thorax. It was apparently the pollinating agent of the orchid and appeared to be dead. After a cursory glance, I popped the flower containing the insect into a bottle for closer scrutiny at home.

Some few hours later while examining the flower under a microscope, the full tragedy was revealed. The insect was securely entrapped in a tiny web on the surface of the labellum by a rear tarsal segment. Because it fitted neatly into the confined space there was very little room to manouvre. It had apparently struggled vigorously for its wings were quite tattered, but to no avail. The predator had not returned to consume its victim since apart from the damaged wings the body was in perfect condition.

The fact that the pollinarium attached to its back was in good order seemed to indicate that

continued p. 157.

The Pollination of Corybas diemenicus (Lindl.) Rupp et Nicholls ex Rupp. cont.

the insect had not been dead for very long.

After noting the insect's position relative to the column and labellum, I carefully extracted it from the flower. It was then measured, sketched and sent to the National Museum where it was identified by Dr. A. Neubois, as a member of the family Mycetophilidae or Fungus Gnats. Unfortunately this is as far as the identification could be taken since the family is a complex one badly in need of revision.

The family Mycetophilidae belongs to the order Diptera or two winged flies. Its members are delicate, slender little gnats found in shady moist places. Many species breed in fungi but generally the life cycle is incompletely known. Flies of the family characteristically have a humped thorax and long antennae. They are separated into species mainly on the character of the antennae and wing venation.

In Australia they seem to be very important in the pollination of galeate orchids. They have been previously reported (1,2) and I have made further observations in their role in other species. These will be dealt with more fully in a future article.

The species found on the Corybas labellum measured approximately 4 mm. long. It was quite dark and with the typical "hunchback" look to the thorax. The perfect adaptation of this gnat to pollination in confined spaces can be readily seen from the drawing. Its slender build enables it to manouvre in the cramped areas where it works. Also, while the insect is feeding the "hunchback" thorax is in the perfect position to pick up and deposit pollinia.

As there may be some doubt that this insect was associated with the pollination of Corybas diemenicus I made a careful examination of the pollinarium on its thorax. Comparisons with fresh pollinaria showed that it was identical and undoubtedly from a flower of C. diemenicus. I have no misgivings that the insect I found is associated with the pollination of this orchid.

The mechanism adopted by the orchid to ensure cross pollination seems simple and relatively ineffective considering the small number of swollen ovaries one sees on this species. Mycetophilids and other micro-dipterans seem to be attracted to decaying smells (3) and it is possible that this orchid emits such a scent. I was not able to observe any behavioural details of the insect since it was dead when I found it, and as well I have not been able to determine any scent from the orchid. This of course does not rule out such a scent which may be imperceptible to us, but attractive to the gnats. In fact, it is quite probable that such an attraction does exist since the orchid is so inconspicuous.

A second attraction is possibly provided by nectar. There seems to be two small glands situated on each side of the base of the column which may be nectaries, or even scent glands. These seem to be quite moist and supply fluid without puncture. E. Coleman reported a projection just below the stigma in Corybas aconitiflorus Salisb. which supplies nectar after puncture (4). In C. diemenicus there is a similar projection. However, liquid oozes from any surface of the column after puncture and it does not appear to be nectar. It is probable that if nectar is present it serves as an enticement and a reward after the insect has entered the flower.

Flowers pollinated by flies are termed Myophilous. A separate division has been coined for those species which lure Dipterans with scents of decaying materials or carrion. These are termed Sapromyophilous. An overall picture has been established for Sapromyophilous species (5) and it is probable from certain characteristics of Corybas diemenicus that it is a member of this group. These characteristics are:-

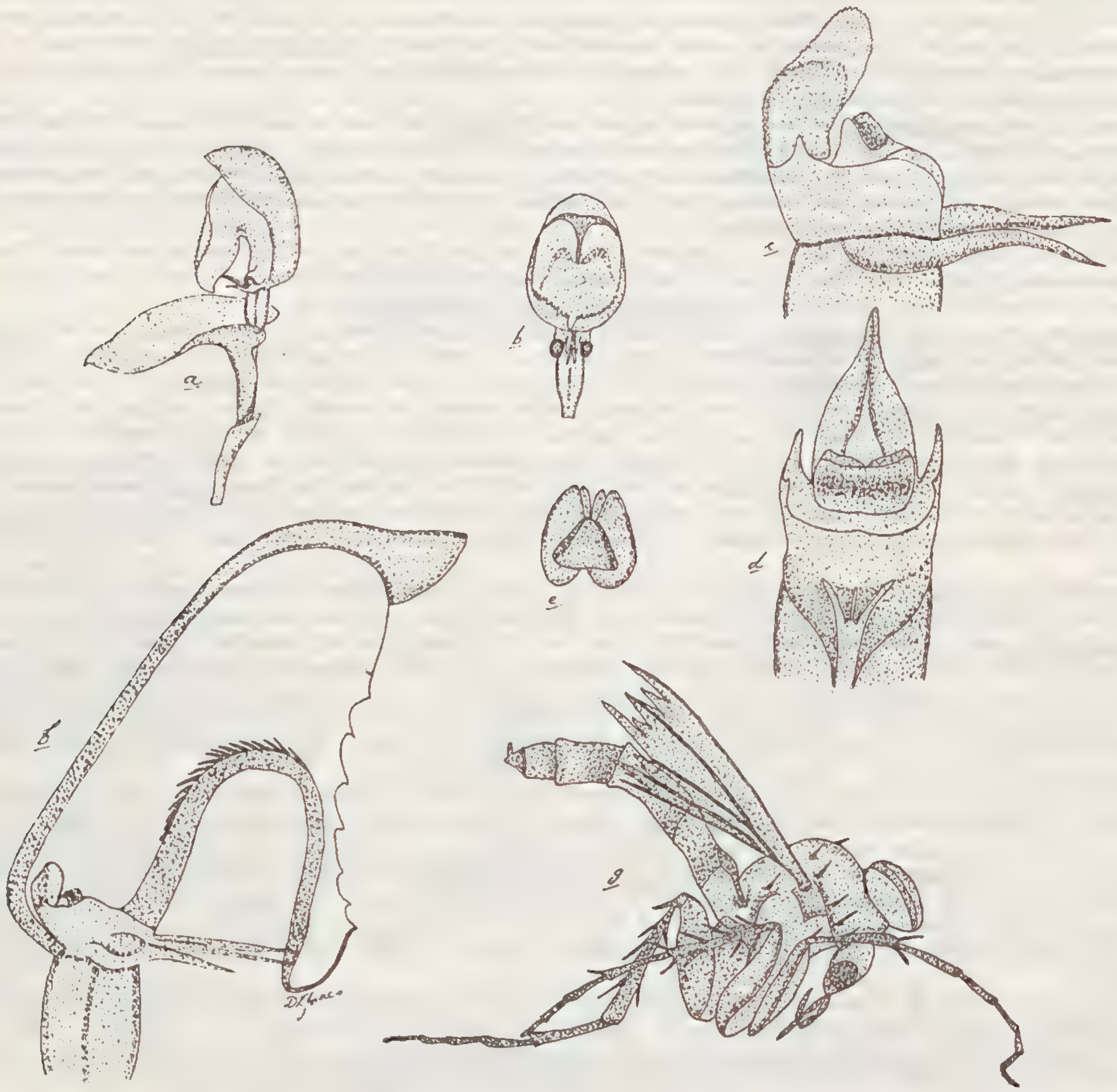
(1) Flower inconspicuous.
(11) Colour dull or greenish, accasionally augmented by a brown-purple.
(111) No nectar guides.
(1V) The presence of the peculiar openings or auricles at the base of the labellum.
(V1) The presence of an entrapping mechanism on the labellum.

As in all orchids, the labellum of C. diemenicus plays the dominating role in its pollination. As the flower matures relative movements of the labellum and dorsal sepal occur. At the time when the pollen and stigma are ripe, these organs are in a position to allow the entry of insects attracted to the flower.

At the base of the labellum the surface is convoluted to form two small auricles. These are sited so that they form a direct connection with the interior-base of the flower and the outside environment. Their role has been somewhat conjectural but I am of the opinion that they are a direct aid to pollination. First they probably allow some small amount of light to penetrate into the interior of a flower which, because of its shape and habitat would be pretty gloomy. Second however, and this is probably the more important factor, it would

continued p. 158.

The Pollination of Corybas diemenicus (Lindl.) Rupp et Nicholls ex Rupp. cont.



Corybas diemenicus - KEY TO PLATE.

A. Plant from side................................1½X NS.
B. Flower from front..............................1½X NS.
C. Column and lateral sepals from side...........40X NS.
D. Column, lateral petals and sepals from side ..40X NS.
E. Pollinarium....................................40X NS.
F. Section of flower.........6X NS.
G. Pollinating agent showing attachment of pollinarium 25XNS.

allow some small air current to circulate. Such a current, no matter how small, would probably be of extreme importance in the diffusion of the attracting scent to the outside environment. It is perhaps significant that the two small glands are situated near the opening of the auricles.

A microscopic examination of the surface of the labellum reveals a wonderful adaptation in the form of a well hidden trap. On the throat at the point where the gradient becomes

continued p. 159.

The Pollination of Corybas diemenicus (Lindl.) Rupp et Nicholls ex Rupp. cont.

steepest, there are a series of cunningly placed downward sloping teeth. These are quite round and slender and would offer no grip to an insect moving forward, while at the same time prevent it backing out once it reaches this point. By going forward, perhaps feeding on the nectar and then using the column to manouvre on, the insect could quite easily get out of the flower again and perhaps in the process bring about pollination.

From some of these remarks we can see that along with many of our orchids the dour little *Corybas diemenicus* has developed quite a remarkable pollination relationship, although observations suggest it may not be as effective as some.

David L. Jones, 2 Kathleen Close, Bayswater, Vic. 3153.

References:

1. Sargent, O.H. Pollination in Pterostylis, Vic. Nat. 51:82 (1934).
2. Hyett, J. Pollination of the nodding greenhood. Vic. Nat. 76:240 (1960).
3. van der Pijl, L. & Dodson, C.H. Orchid flowers their pollination and evolution (1966).
4. Coleman, E. The pollination of *Corysanthes bicalcarata* R.Br. Vic. Nat. 48:95 (1931)
5. Faegri, K. & van der Pijl, L. Principles of pollination ecology 1966.

A NEW SPECIES OF ERIA Ldl.

Ian Walters

The following description and drawing of a species of *Eria* Ldl. is certainly that of a species new to Australia. The single specimen collected is insufficient material on which to base a new species, and further specimens would be most welcome from any diligent collector of native plants from the Daintree River area of north Queensland. It is quite distinct from any other Australian species.

An epiphytic, sympodial plant, consisting of slender, cylindric club shaped pseudobulbs. Pseudobulbs to about 20 cm. high, thickened in the upper half, to 12 mm. diameter; slender at base to about 4 mm. diameter. Pseudobulbs of up to 7 internodes, nodes to 2 - 4 cm. apart. Rhizome short, to 4 - 5 mm. between pseudobulbs, roots thin, wiry.

Leaves apical, to 4 in number, lanceolate, acute, to 14 cm. long, 25 mm. wide, shortly stalked at base, light green in colour, with a prominent mid-vein.

Inflorescence from apical nodes, about 8 cm. long. more or less erect. Inflorescence on plant observed with 12 fragrant flowers. Flower spike lightly pubescent with fine brown-black hairs. Each flower subtended by a large green-yellow bract. These bracts are variable in shape, cordate to broadly lanceolate, the basal ones up to 12 mm. wide and 18 mm. long, pointed. Bracts progressively smaller towards apex of spike.

Pedicelate ovary slender, about 15 mm. long, 1 mm. diameter, pubescent with fine brown-black hairs.

Overall spread of flowers across lateral sepals about 2 cm., height to 8 - 9 mm. Dorsal sepal projects forward over column, to about 1 cm. long, 4 mm. wide, broadly lanceolate, acute. Lateral sepals spreading at apical half (about 90° angle), about 4 mm. wide, acute; basal half slightly wider, parallel to column and labellum and joined to the column foot to form a mentum. Overall length of lateral sepals 12 - 13 mm. Mentum broad, obtuse, about 5 mm. long, 4 mm. wide, rounded at base.

Petals lanceolate, curved forward over column, about 3 mm. wide to about 10 mm. long, acute. Labellum trilobate, the lateral lobes erect, pointed, about 2 mm. high at apex, tapering back to base of labellum, about 8 mm. long. Midlobe almost circular, projecting down, about 5 - 6 mm. diameter, the margins slightly down turned, the apex slightly cleft. Base of midlobe with a slightly rugose, circular disc.

Labellum with 3 low keels, one at the base of each lateral lobe, these less than .5 mm. high, the other much smaller, situated along midline of labellum. The keels taper back to just short of the base of the labellum.

Column and column foot curved, about 8 mm. high, about 2 mm. wide. Anther cap small, rounded, with a slight crest on top. two celled, containing 8 somewhat flat, rounded, yellow pollinia with caudicles. The short caudicles and bases of pollinia protruding from under anther cap.

Rostellum a platform with a ridge down the middle, the apex of the rostellum projecting out slightly, the apex almost circular. Stigma below rostellum, viscid, set in face of column.

Colour of sepals and petals a pale yellow-green, with some light reddish brown stripes on the inside of sepals and petals. Base of column foot stained red-brown. Labellum reddish brown, except the midlobe which is pinkish-yellow. The disc at base of midlobe is reddish-brown, edges of lateral lobes whitish, apex of two large keels whitish, the basal ends of all keels

continued p. 160.

A New Species Of Eria Ldl. cont.

dark red.
This species belongs to the section; Hymeneria, and its long slender pseudobulbs and large flowers readily distinguish it from other Australian species.
Distribution: A single plant in flower was collected in the Daintree River area by Mr. W. Doran, of Townsville.
Flowering period: November.

Ian Walters, De Courcey St., Mundingburra, Townsville.

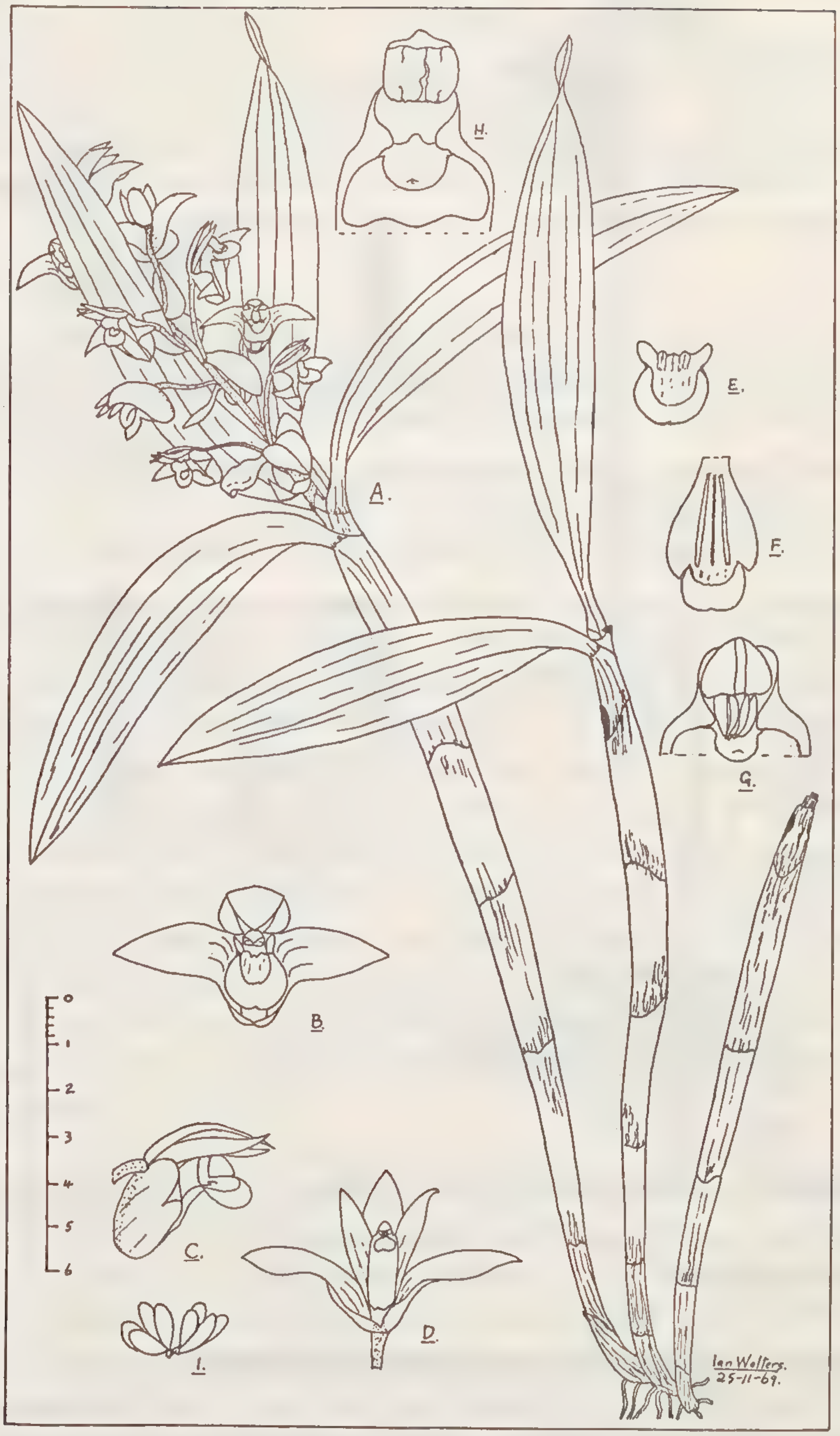
A NEW RECORDING FOR CHILOGLOTTIS PESCOTTIANA R.S. Rogers.

Alan Logan

In The Orchadian Vol. 3. No. 3. p.36, S.C. Clemesha raised the point that some members considered The Orchadian too technical. If this publication is to remain in the forefront of Australian orchidology, then it obviously must be technical in certain fields, namely taxonomy, morphology etc. For those members who find botanical terminology a little hard to follow, I would refer them to that excellent little publication "The Language of Botany", by C.N. Debenham. I have found very few technicalities which are not explained in this handbook and at 40¢ a copy it's a gift considering the information it contains.
I would also like to comment in the Dipodium hamiltonianum, species or variety issue. I am only familiar with the plants in my area, but I feel that there are sufficient stable differences between the two for D. hamiltonianum to be a vaild species. I would not like to quote comparisons until I receive the back issues of Vol. 2, and can read what has been published earlier. However, it will be a shame if this striking and distinctive orchid is reduced to varietal rank. When I found this species here in 1968, I formed the same opinion as R.C. Nash (The Orchadian Vol. 3. No. 3. p.37.) that this form was older and more fixed than Dipodium punctatum.
Members will be interested to read of my latest recording of note and also another first for N.S.W.
On the 4th. October 1970, my son and I, while searching an area for Chiloglottis gunnii, located plants of Chiloglottis pescottiana growing under light Eucalyptus growth, mainly E. radiata and E. goniocalyx, on a grassy, loam slope with a southerly aspect. Only one major colony was found, covering about two square yards and containing approximately 300 plants, of which about half were in flower. This colony is not growing in immediate association with any other species but C. trapeziformis abounds in the area.
A week later, a more thorough search was made and another 15 plants of C. pescottiana were found growing in association with C. trapeziformis, while a small colony of C. gunnii, containing about 80 plants was located approximately 120 yards west of the main colony of C. pescottiana. I might add here that only one other colony of C. gunnii, containing about 25 plants and approximately one mile north of the above plants, has been found in the district.
Following is a description of C. pescottiana from the above specimens.
Chiloglottis pescottiana R.S. Rogers in Proc. Roy.Soc. Vict. new ser. 30. 139, t.25 (1918).
A small glabrous herbaceous, fairly robust plant, 5 - 10 cm. high. Foliage basal, always present at flowering time (September - October). Leaves 2, petiolate, oblong-narrow elliptical, 4 - 5 cm. long by 1.5 - 2 cm. wide, margins entire, petioles 1 - 2 cm. long. Bract 1, sheathing, acuminate, situated halfway or higher on scape. Flower solitary, zygomorphic, perianth greenish-bronze turning darker reddish-brown as flowers age.
Lateral sepals linear, 16 mm. long, pointed, recurved, horizontal or slightly erect. Dorsal sepal erect, behind and ± covering column, 16 mm. high X 7 mm. wide, spathulate, acuminate, the point usually but not always terete. (Nicholls Fig. H, t187) Lateral petals lanceolate, 14 mm. long X 5 mm. wide, slightly falcate, acuminate, spreading and slightly deflexed. Labellum highly mobile on a very short claw, broadly elliptical or rhomboid, 13 mm. long X 10 mm. wide, slightly deflexed about the middle, basal two-thirds concave. Calli arrangement nearly exactly as for Nicholls, viz. (1) One sessile crescentic callus in centre of lamina, (2) one stalked, slightly reflexed bilobed or crescentic headed callus, 3 mm. high, at basal third, (3) various medium or smaller stalked, capitate, erect or angled, calli between (1) and (2) but nearer (2). All the above on labellum mid-vein. (4) Smaller stalked or sessile capitate calli in a scattered row both sides of the above, commencing near largest callus and terminating in a sessile gland at base of lamina. Nicholls Fig. G, t187) Lamina with a raised ridge or callus plate between (1) and (2) from which (3) arise. Column erect, curved,

continued p. 162.

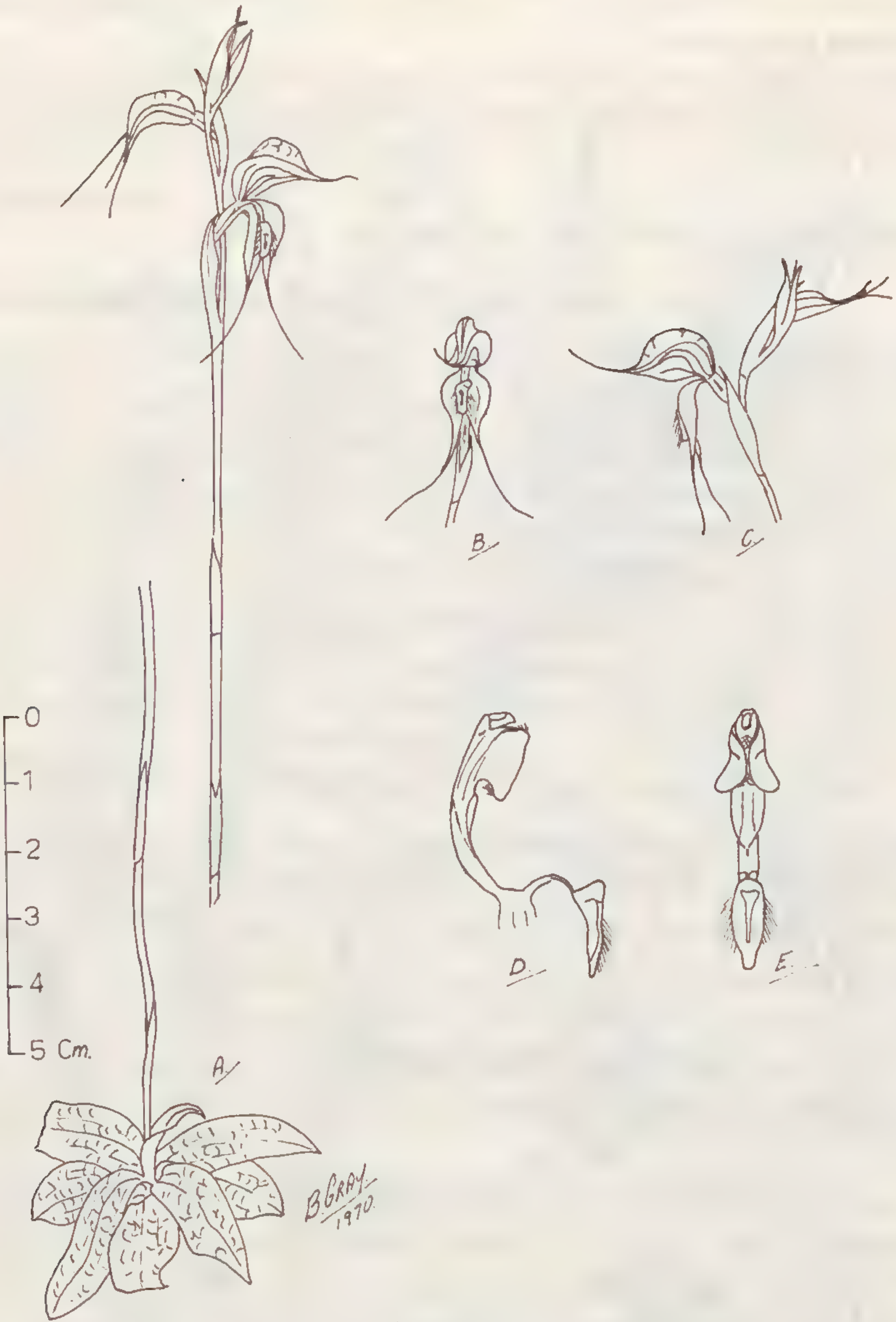
A New Species of Eria Ldl. cont.



KEY TO PLATE

A. Plant.....................to scale.
B. Flower from front.....to scale X3.
C. Flower from side......to scale X3.
D. Flower minus labellum to scale X3.
E. Labellum from front to scale X3.
F. Labellum spread.........to scale X3.
G. Tope of column much enlarged, showing anthere anther cap, pollinia & rostellum.
H. Top of column, anther cap lifted, minus pollinia, showing rostellum and stigma.
I. Pollinia much enlarged.

A New Pterostylis In North Queensland. cont. from Vol. 3. No. 10.



PTEROSTYLIS GIBBOSA ssp. MITCHELLII - KEY TO PLATE

A. To indicated scale.
B. To indicated scale.
C. To indicated scale.
D. To scale X3.
E. To scale X3.

A New Recording For Chiloglottis pescottiana R.S. Rogers. cont.

12 mm. high, ± evenly winged but widest in upper half, wings terminating in ± triangular points which are higher and ± embrace anther. Stigma discoid, situated at top of column and immediately below anther. Anther pointed, pollinia 2.

References: "Australian Plants" Vol. 1. No. 8. 1961. "The Genus Chiloglottis", L. Cady.
"Handbook to Plants in Victoria" Vol. 1. J.H. Willis. 1962.
"Orchids of Australia", W.H. Nicholls. 1969.

continued p. 163.

A New Recording For Chiloglottis pescottiana R.S. Rogers. cont.

Location: Headwaters of the Carabost Creek, Carabost State Forest, 18 miles WNW from Tumbarumba, 22 miles N from the Victorian border, (upper Murray region) and 60 miles NNE from the type locality at Cravensville, Vic. (All mileages approximate).
This species may be more widespread in the upper Murray region of both states and should be looked for there, particularly where C. trapeziformis and C. gunnii are known to occur together. The large scale clearing of native Eucalyptus forest on both sides of the border for planting exotic softwoods, must be eliminating many rare orchid species before their full distribution can be determined. This colony of C. pescottiana has a life span of about six years and can be expected to go under the bulldozer any time after that!

Alan Logan, "Wodara", Carabost, Wagga Wagga, N.S.W. 2650.

SOMETHING WORTH TALKING ABOUT.

R. Smythe

Australian native orchids mean a lot to me ! For years now I have felt great joy and satisfaction walking through the bush looking at flowers of our native orchids.
I have been very fortunate, seeing almost every epiphytic species in Australia. Through membership of A.N.O.S. I have made friends with such enthusiastic people as Eric Gordon, Bill Murdoch and Harold Jay in Sydney.
I would then go north to Brisbane, Toowoomba, Rockhampton, Mackay, Townsville etc., up to Pt. Moresby in Papua rattling off friends names all the way. It's a wonderful feeling to know you have friends in these places where you can just walk in on a grower and find you are on a common level. The status symbols so prevalent in our everyday life just crumble away.
One of my most frequent companions when I go bush is that close to being illiterate that it takes him three hours to write a page and then only with the help of a newspaper to find the words he needs. I on the other hand am an academic and whether I want it or not, I find in everyday life that this does imply status. This was thrust upon me today. I wanted a coconut to use in flasking and asked a housewife nearby if I could collect one from her tree. I suffered a half hour lecture on how all the nuts were promised to people from up to 100 miles away. On mentioning that I could be contacted at the University when the now immature ones ripened, I left with as many nuts as I could carry, with the threat of having to take more, plus an offer to come back and get more whenever I wished.
I find a lot of interest outside the flowers of the plants. Pollination mechanisms are an obsession with me. I visualise the most grandiose things and have coloured strings and all sorts of strange things atached to my flowers to try and work out one thing or the other.
I have been fortunate enough to observe several different pollinators and am gradually publishing these findings. I would like to point out a few generalities on this subject which are not worth publishing on their own, but could be included in an article such as this. Pollinations occur very infrequently and much patience is required. People who are not interested in this aspect cannot understand how difficult these observations are to make, or how infrequently they occur and how difficult it is to see both stages i.e. pollen removal and pollen deposition.
The number of disappointments are also great. Many insect visitors are observed which are obviously too small to be pollinators. On the other hand we have orchids such as Dendrobium discolor and D. canaliculatum which insect visitors just do not appear to frequent. I have probably spent 50 - 100 hours watching these species. The only thing I can say is that the pollinator is probably large and I believe, a strong flyer. I believe it to be one of the very large bees that dart around the flowers in my garden. I can watch Dendrobium canaliculatum for hours, then one day I find every second flower, or more, has been pollinated. The pollinator is extremely efficient but a very infrequent visitor. I expect the same pollinator might be involved with Dendrobium discolor.
I have at least estimated the weight of the insect involved, as well as its size and I believe it to be quite large.
An interesting observation you might like to check out is that the lip of the orchid flower changes colour after the pollen has been removed. This is obviously a mechanism preventing wastage of time by the insect. The lip uses its coloured lines present on the calli to serve as nectar guide lines to lure the pollinating insect. After the pollen is lost these lines disappear, giving a much duller and less interesting lip, so that the bee will then travel to a more suitable flower, deposit its pollen and receive a second pollen deposit on the way out.

continued p. 164.

Something Worth Talking About. cont.

Another theory I have is that Phreatia robusta is pollinated by a small black ant. One reason is the fact that these plants colonise low to the ground. The argument runs much the same as the ants keeping the red scale on the lower leaves of your "Umbrella Tree". Obviously ants can pollinate and collect nectar better if the plants are close to the ground. Therefore, the most frequently pollinated orchid should, on statistical grounds, be the one closest to the ground. Following this, the plants would be expected to colonise closer to the ground.

Now you know my theory. How did I work on it ? I sat for hours watching myriads of little black ants crawling up and down plants. So far I have not seen one pollinia carried past. The pollinia is so small, I would have to get a glint from the sun's reflection on it as I did with the Dendrobium lichenastrum pollinator I observed, to be able to detect the pollinating ant.

I would hate to estimate how many ants visit these flowers and how few pollinations occur. I have seen the ants literally jamming up the flower and I am convinced they do the job, but I do not know how I am going to prove it.

The "Cooktown Orchid" I believe to be pollinated by the introduced honey bee. They fit perfectly in the flower and so far I have found two dead bees in the flowers, once on Thursday Island and once in Townsville. I hope I have suggested something for the native orchid enthusiasts to do during their idle hours. Next time your wife says, "take your bed down and sleep with those plants", you have the retort ready, "I don't want to sleep with them, just want to find what's pollinating them !". Can't tell you what your wife will say to that. Sometime I will ask you what she said, to find out if they all think alike.

So far I have given the readers some insight into where I have been looking at orchids and what sort of things tickle my fancy.

My house has proven a popular half-way house for friends coming north to see our tropical orchids. I have found that many southern growers are under misapprehensions about northern orchids. At this point I am prepared to offer my services to the Editor of A.N.O.S. I am prepared to answer questions about our northern plants that members might send to A.N.O.S. One thing I must insist on is that letters and answers must go through A.N.O.S. as I could think of nothing worse than writing the same answer to many people. I know all the enthusiasts in north Queensland as I have travelled, giving lecture tours on orchids in Atherton, Innisfail, Cairns, Bowen, Mackay and Rockhampton and have made contact with growers in these areas to whom I could refer specific questions. If my answers are controversial I think at least I could draw Bill Murdoch into an argument. This could provide stimulating reading in our Orchadian. Could I give an example of what hight happen ?

Q. What Dendrobiums flower well in Townsville and what north Queensland Dendrobiums would you recommend for our cooler climate in the south ?

A. Dendrobium canaliculatum, D. speciosum, D. tetragonum var. giganteum, D. discolor & the D. bigibbum aliance give the best and most reliable flowering in this area. Dendrobium agrostophyllum, D. fleckeri and D. adae are shy in flowering which usually have to be well established and have achieved an exceptionaly lush growth to flower. Dendrobium kingianum does not flower in Townsville under normal conditions. An alba form that I have, flowers regularly as the exception, but never as a mass flowering, only as a succession of odd flowers . The plants I recommend for the south would be Dendrobium ruppianum, D. adae, D. agrostophyllum and D. fleckeri as they grow at about 2,000 feet altitude and higher. They should grow and flower well under cool conditions in the south.

I am sure answers like this would raise an eyebrow or two in the south. Someone with hot house conditions could follow up with a comment on the excellent flowering of Dendrobium discolor in Tasmania, as was obvious from the 6th. World Orchid Conference Show. I will leave it at that. The rest is up to the readers, the Editor and myself.

R. Smythe, James Cook University of North Queensland.

FLORA OF NEW ZEALAND, Vol. II - Moore and Edgar.

The co-author's L.B. Moore and E. Edgar have in this second volume, continued the great work envisaged by the late Dr. H.H. Allan. This great botanist retired as Director of the Botany Division of the Department of Scientific and Industrial Research in 1948 and then began work on this Flora. However, his death in 1957 occurred before publication of Vol. I of his Flora in 1961.

Vol. II includes a most comprehensive enumeration of the Orchidaceae of New Zealand covering 21 genera and is accompanied by 1 plates by J. Bruce Irwin. Our copy from the New Zealand Government Printer, cost $4.50. A full review will appear in Vol. 4. No. 1.

Royal Botanic Gardens Victoria
RBG00017382